Gas Journal

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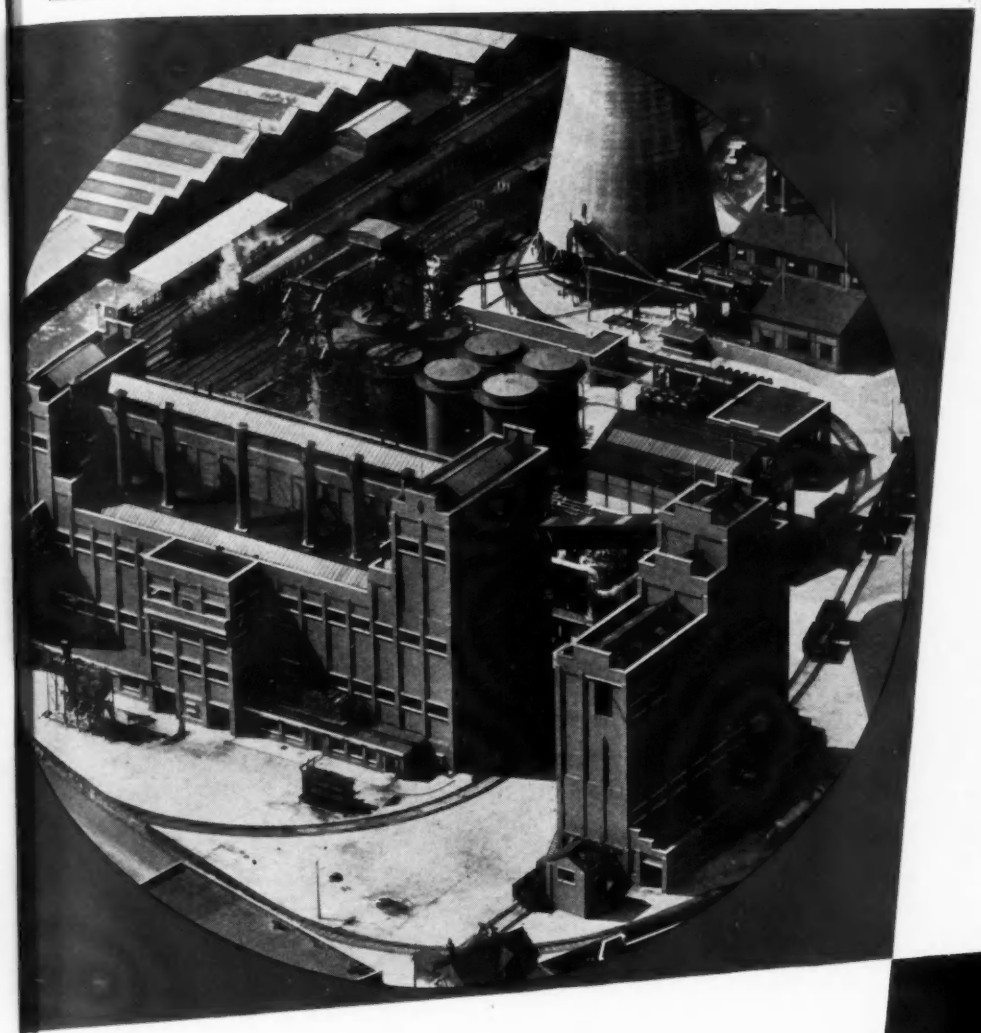

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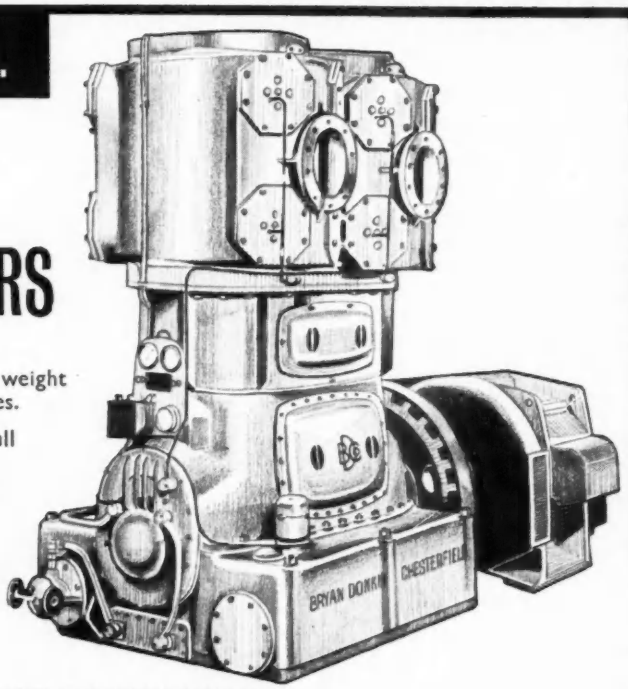

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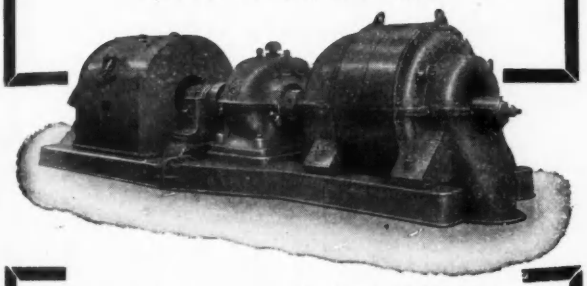

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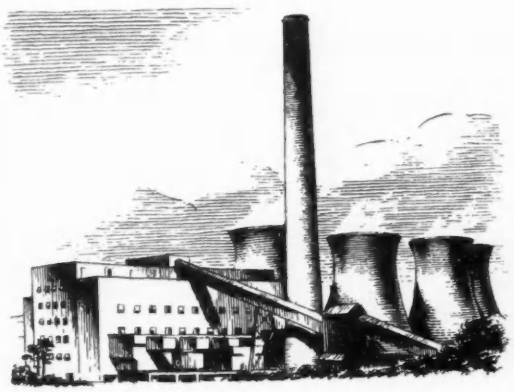

WATER COOLING
SPECIALISTS

Gas Journal

VOLUME 302 • NUMBER 5052 • 112th YEAR

WEDNESDAY, JUNE 29, 1960

CONTENTS

EDITORIAL COMMENT

Premium Fuels to the Rescue - - - - - 549
New Light on Gas Liquor - - - - - 550
W.G.F. Annual Meeting - - - - - 551
Ragged Chorus - - - - - - - - 551

SPECIAL ARTICLES

South Africa: Installation for Complete Gasification Taken Over - - - - - - - 552
Leadership—and the Presidency. By W. H. Johnson 555

97th ANNUAL GENERAL MEETING INSTITUTION OF GAS ENGINEERS

Coke in a Changing Market. By Dr. F. A. Burden, and D. G. Rose - - - - - - - 556

NEWS SUPPLEMENT

NALGO Conference at Brighton - - - - 565
Gas Governors Now Mandatory - - - - 565
Gas Prices Raised in South East - - - - 565
Scottish Staff Conference - - - - - 566
Symposium on Pressure Vessel Design - - - 568
Eastern Section A.G.M. - - - - - 569
New N.E.G.B. Premises - - - - - 569
'Room Only for First-class Fitters' - - - 569
Personal - - - - - - - - - 570
Obituary - - - - - - - - - 570
Coming Events - - - - - - - - 570

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PUBLISHERS' NOTICE, SEE PAGE 352, JUNE 1, 1960

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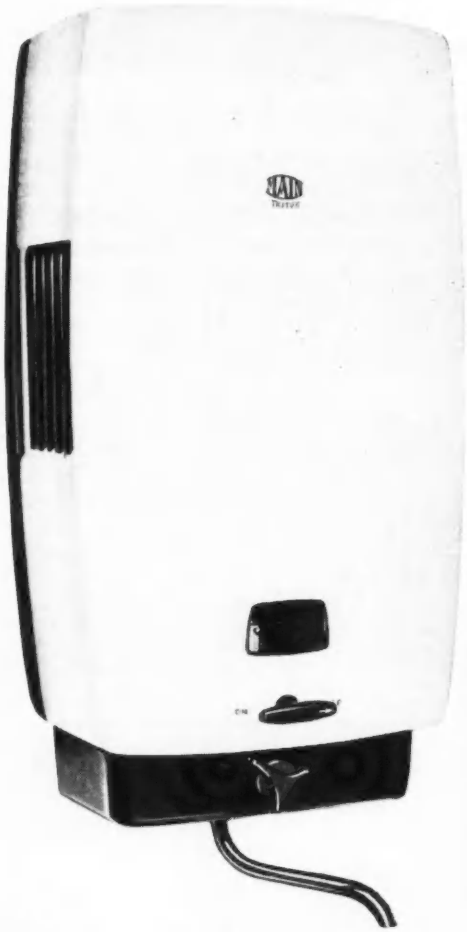

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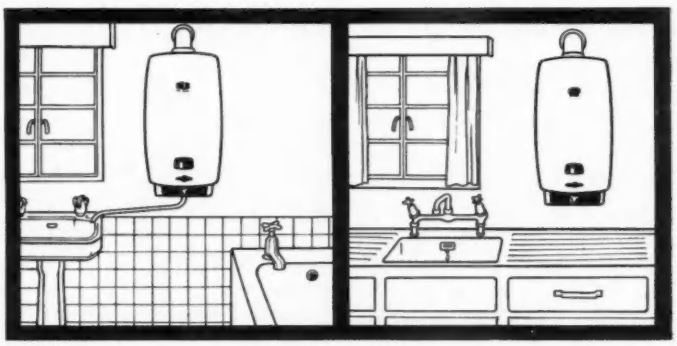

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Gas Journal

COKE OVENS • BY-PRODUCTS • CHEMICALS

Premium fuels to the rescue

IT is a perennial question whether the gas industry should be considered a two-fuel or a single fuel industry; the establishment of a satisfactory answer to it becomes steadily more important when coal and oil gasification processes are being developed and seem likely to replace carbonisation in the foreseeable future. The advent of smoke control areas brought into being by the Clean Air Act, was heralded as the great opportunity for solid smokeless fuel, and it was confidently anticipated that it would increase the demand for coke. For all practical purposes 'coke' was generally taken to mean 'gas' coke, which would be assisted by 'hard' coke to meet the expected demands.

Competition from other quarters has modified these hopes and a reappraisal of the actual part coke can play in the future of smoke control areas is needed.

The paper, 'Coke in a Changing Market,' by Dr. F. H. Burden, Officer-in-Charge of the coke laboratory at Watson House, and Mr. D. G. Rose, Coke Manager of the North Thames Gas Board, presented at the recent meeting of the Institution at Edinburgh, is a most interesting analysis of the present position of coke in relation to other smokeless fuels.

A paper on this subject is most timely since the development of space heating by gas-fired convector room-heaters and gas-fired central heating has tended to push coke so far into the background as to create the impression in the minds of many that coke is no longer a serious participant in this, its traditional field.

The authors are at pains to paint in the background of the complete space heating picture and to show that in spite of this falling off in the demand for coke as such, there is still a considerable demand for solid smokeless fuels. There seems to be little doubt that the word 'coke' has a past to live down, and it is interesting to see how the authors trace the cause of this bad name.

In the early days of the industry coke was undoubtedly sold at a very low price to allow the expanding gas sales to be met by increased carbonisation. At the same time the lower retort temperatures then employed were responsible for making ordinary gas coke a considerably more reactive product than is common today. Consequently it was possible to burn it on the Victorian open fire without any special type of grate being needed. With the raising of the retort temperatures and the introduction of the continuous vertical retort, the character of the coke changed and so did the correct means of burning it; in time its price rose above that of coal.

The need to design a special grate to burn these unreactive high temperature cokes was recognised nearly 30 years ago, and the Fulham and Metro coke grates appeared in the early 1930's to encourage the continued use of the coke. Fuel shortages during the war years and immediately afterwards helped to maintain a demand, but unfortunately, we think, did not encourage the coke producer to pay the attention to consistent coke quality we now know to be necessary.

With alternative fuels, such as oil and indeed gas itself, easier to handle, coke of indifferent and inconsistent quality was no longer to be tolerated for the open fire, though improved designs in solid fuel domestic boilers had made possible the burning of coke for hot water production in place of the much more expensive anthracite.

Although the authors do in fact admit that eventually the demands of the public will probably be met by a piped or wired fuel, they are quite convinced that there is still a considerable market for solid smokeless fuel. They stipulate, however, that for whatever purpose it is used, it must be suitably reactive and be prepared with the utmost care according to the appropriate British Standard Specification. This is borne out by the success of the premium fuels such as Cleanglow and Phimax. After a slow start, during which period the public was trying them out to be quite certain they were all they claimed to be, sales of these fuels have been brisk and any stocks accumulated in the first year have been quickly disposed of.

That the responsibility of the producer does not end here is shown by the emphasis the authors place on sizing and consistency of quality. Bearing this in mind it does seem that coke under another name is an acceptable product, to the domestic consumer at any rate. The development of continuous-burning free-standing stoves and up-to-date thermostatically controlled hot water boilers has done much to retain the demand for ordinary 'gas' or 'hard' coke, but here too the consistency of coke quality is important, though perhaps less so than proper coke grading. If both are

given the attention they deserve, we feel that there is every indication that the domestic consumer may continue to buy coke in the present quantities.

Although we are aware of the success of the premium fuels and how well the public are receiving them, we are still not satisfied that the general demands for coke of all grades are going to return to the levels of some six years ago. There is no doubt that the introduction of the premium fuels has helped a great deal in encouraging the use of solid smokeless fuels on grates that had replaced completely obsolete fireplaces in low priced conversions. Such changes were inevitable sooner or later if otherwise serviceable house property was not going to be demolished. What of new housing, of new standards of comfort and of the demands of the newly marrieds? Solid fuel might, we think, be unpopular with the latter, and here will be the great opportunity for the gaseous smokeless fuel in some form of whole house heating. We do feel, however, that it is most significant that the domestic coke consumer should have recognised a good quality product when he saw it, and most important of all, was prepared to pay for it. We can only presume that the return in extra warmth and comfort from a premium fuel burning on a modern grate compensates for the dirt, soot and smoke from the familiar coal fire, for it can be neither easier to handle nor store.

The authors refer to the decline in the art and practice of coke salesmanship, brought about by the fuel shortages within the past 20 years. Coke quality should be just as carefully controlled as gas quality and we feel that the coke salesman should be given a product he can confidently recommend to the housewife. If neither he nor she are certain of the quality of the dearer fuel, little progress will be made in keeping sales even at their present level and the sooner the industry's other fuel is a thing of the past, the better.

New light on gas liquor

THE publication of a handbook on nitrogenous liquor as a fertiliser* is long overdue. Ten years of practical application in the commercial field is a long while to go without any composite work of reference. On the other hand, now that such a handbook has appeared, the facts set out are all the more reliable, inasmuch as they carry the weight of a long period of experience and of trial and error behind them. As Professor H. G. Sanders, Chief Scientific Adviser to the Ministry of Agriculture, remarks in the foreword: 'Direct use of gas liquor has passed the experimental phase and is being increasingly adopted in this and other countries.' Indeed, the extent of current demand over the last few years may be gauged by the fact that national sales which in 1955 were less than 5½ mill. gal. had risen last year to over 61½ mill. gal., an eleven-fold increase in four years.

It may be appropriate here to say a word about the body which sponsored this work. The National Association of Agricultural Contractors is the body which represents contractors in all matters affecting their interests—such as insurance, health and safety arrangements and negotiations with the appropriate Ministries. One of the objects of the Association is to promote and maintain the highest possible standards among its members. This is achieved by specialist committees, of which the Nitrogenous Liquor Committee is one; and these committees meet regularly and keep all members informed of developments in their fields. A good example of this work is the production of this booklet by the Association's Nitrogenous Liquor Committee.

The information in this work is set out in simple, readable form. The results of trials (one of them on the author's farm, which was published in these columns last year) should demolish any scepticism which may still exist about what is described as 'one of the greatest advances in fertilizer technique since the introduction of artificials.'

No attempt is made to lay down hard-and-fast rules on rates of application—wisely, perhaps, since farmers as a race do not take kindly to hard-and-fast rules. Instead, general recommendations indicate the high and low limits for various crops on the basis of sulphate of ammonia equivalents. Due emphasis is given to such ancillary advantages as weed and pest control which, at no extra cost to the user, provide something which no other fertilizer can claim. We are glad to see that the booklet effectively lays the scorch bogey, which has been a major cause of criticism in the past. In fact, chatting with a prominent liquor contractor at the Press Conference which marked the launching of the publication, we were told that farmers are apt to complain now if they do *not* get some degree of scorch, in the belief that this is the outward and visible sign that they have had their money's worth and that the liquor is going to work. A refreshing *volte-face* indeed!

In the main, this booklet will be used to supplement contractors' own publicity, for which reason no specific prices or terms are quoted. It is made abundantly clear, however, that the in-the-ground price shows a distinct advantage over solid forms of nitrogen—the farmer not being involved in labour, wear-and-tear, fuel, storage or handling.

A notable omission is any reference to liquid compounds based on nitrogenous liquor. This may be due to the fact that not all contractors are yet in a position to offer compounds, the development of which is still in its infancy. The addition of phosphate and potash in soluble form to the liquor presents no serious difficulty; but farmers call for such a wide variation of the percentages of the three elements for different crops and different soils that to meet all requirements would doubtless be somewhat complicated. It is a development, nevertheless, about which we shall certainly hear more in the not distant future.

The booklet was launched by way of a Press Conference at the Farmers' Club in London, attended by representatives of the Technical Press of both industries, the Ministry of Agriculture, the Gas Council, gas boards, and contractors, presided over by the President

* 'Nitrogenous Liquor as a Fertilizer,' by F. Clifton Sherriff. Published by the National Association of Agricultural Contractors, 52, Bedford Row, London, W.C.1; price 1s.

of the N.A.A.C. (the Hon. F. N. W. Cornwallis), supported by the Chairman of the Nitrogenous Liquor Committee (Mr. A. R. Cecil). A number of coloured slides brought along by Mr. T. A. Dick, of the West Midlands Gas Board, provided impressive evidence of the weed-controlling effect of liquor on kale.

It was a pleasure to see Col. H. M. Lawrence at the gathering and appropriate that he should be invited to say a few words—for it was he who was affectionately known in those early pioneering days in Hampshire as 'Father of the Liquor Lark.' Though long since translated to other spheres of the Southern Gas Board's activities, we suspect he still has a warm corner in his heart for that bird of fearsome hue which rumour has it still hangs in the same gilded cage in a certain S.G.B. office. Col. Lawrence told us that it was ten years ago to the very day that he personally drove the first liquor distributor in Hampshire (and got a puncture in the process!) He spoke appreciatively of the staunch support given to him by the author and the 'GAS JOURNAL' in those far off days; and it must have been a source of considerable satisfaction to him to return to a function of this kind and say, 'I told you so!'

A pleasure, too, it was to hear a word from Dr. M. Barash, who claimed, in the nicest possible way, that gas liquor was being used on a farm in Lincolnshire several years before operations commenced in the south. Nevertheless, we think the Southern Gas Board's claim to be first in the field of large-scale commercial distribution still holds good.

So, at long last, we have available a textbook on the application of gas liquor, and in very readable form. We hope the gas industry will make as much use of it as the contracting side will. We look forward to seeing a copy or two in the showroom window or on the counter, and expect to find it available in larger quantities at all the big shows, agricultural and otherwise, at which the industry exhibits; for, after all, this is just one more facet of the industry's service to the community and a not unimportant one at that.

Commentary on the News

W.G.F. annual meeting

PERHAPS it was 'Gas rockets ahead in space heating,' the winning entry in the Women's Gas Federation's slogan competition, which inspired Sir Henry Jones, the Chairman of the Gas Council, to devote part of his address at the Federation's 25th Annual General Meeting last week to space heating. The increasing demand for gas for central heating and hot water supply, now to be further spurred on by the new loan scheme, certainly provides a good talking point, and Sir Henry put in a plug for room heaters as well.

The conception of gas as a really economical fuel for central heating, and the conception of modern gas room heaters as products infinitely superior to the old type of gas fire, is something which needs to be put over with the utmost vigour. What better school of ambassadors than the W.G.F. whose sympathies are clearly with the gas industry and whose contacts in feminine society are large and influential! First, however, the members must themselves be convinced of the superiority of gas for home heating, and we cannot help wondering whether sufficient steps have been taken to ensure that this conviction is complete. As we have said on previous occasions, the value of the W.G.F. to the gas industry is in direct proportion to the industry's cultivation of that body. The spreading of the home heating by gas gospel seems to us to be a perfect example of the kind of service the Federation can best perform.

On the other hand we could not follow the reason for the emphasis laid by Sir Henry on the physical strength of women and the need for gas appliances to be strong and durable. Each preoccupation with the subject implied that certain appliances had been found to be lacking in these qualities. Surely as an industry we are relatively guiltless in this respect?

The meeting revealed a regrettable flurry of retirements. Miss K. M. Halpin, whose Presidency of the W.G.F. has brought the Federation added distinction, is not seeking re-election; the indefatigable Mrs. G. E. Evershed, whose Chairmanship has made her a host of friends throughout the country, is also retiring, and so is Miss D. W. Pidsley who has done a fine job as Branch Liaison Officer. They will certainly be missed.

Ragged chorus

CURRENT public preoccupation with gas prices is an unhealthy thing for the industry. Yesterday the South Eastern Gas Board announced a flat rate increase of 2½d. a therm and the South Western Board announced that it would hold its gas price. Now speculation is rife concerning the plans of other boards. Why must the price increases and tariff changes of each board to be announced separately? If all 12 boards were to adjust their charges, this would mean that the news—which can only be interpreted as bad publicity—makes the headlines on 12 separate occasions. Small wonder that gas is commonly thought to be an expensive fuel!

The gas boards are of course autonomous and each makes whatever price adjustments are deemed necessary to ensure economic operation. Is it this autonomy which prompts boards to act independently at such times, so that they avoid possible accusations of collusion? Surely not, for consumers cannot be so naïve as to think that boards operate in watertight compartments.

In our view announcements of this kind should as far as possible be synchronised so that the public has its physic in one large dose and can then get over it, instead of a succession of smaller doses which both irritate and destroy confidence. If this suggestion is not considered worthwhile in the country as a whole, we would make a strong plea for joint action in the North Thames and South Eastern areas. These two Gas Boards now enjoy a considerable measure of co-operation, and if both boards contemplate making some price increase it would surely be a simple matter to ensure that their announcements are made on the same day. This would result in the newspapers carrying only one story on 'Dearer Gas for London' instead of two.

Of course, if prices go *down* it is a different matter entirely!

Aerial view of the Cottesloe gasworks, Johannesburg, showing the Glover-West retort houses and the Tully complete gasification plant.

SOUTH AFRICA

Installation for complete gasification taken over

NEWS has been received from South Africa that the installation and commissioning of two Tully complete gasification plants for the City of Johannesburg Gas Department (of which Mr. J. G. Curnow is General Manager), has been successfully completed. The plant was taken over by the Municipality on March 21.

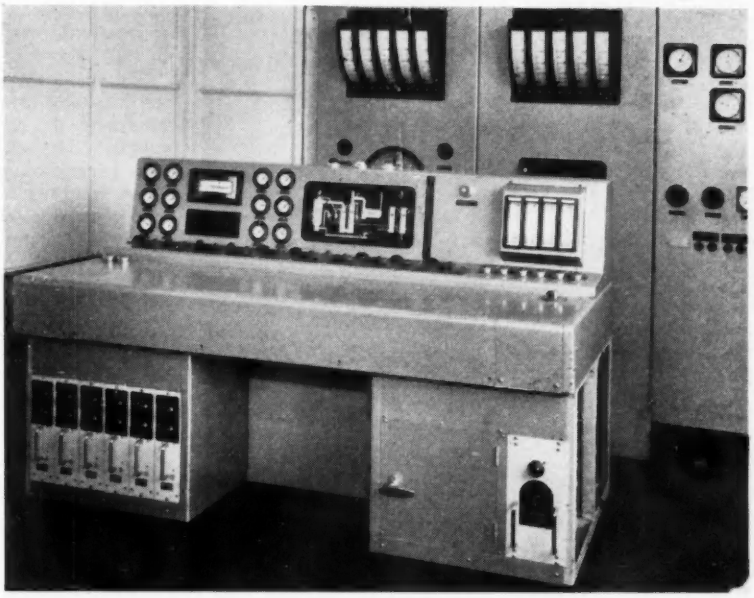
In 1955 the Gas Department investigated the possibility of utilising local coals which exhibited poor coking and weakly caking properties by a complete gasification process. After a study of the systems available an order was placed in 1956 with West's Gas Improvement Co. Ltd., for two units of carburetted complete gasification plant, each capable of producing 2 mill. cu.ft. of gas per day at 450 B.t.u. per cu.ft. to be designed by their associates, Tully Engineering Co. Ltd.

Erection of the installation was undertaken by the Company's agents, Blane & Co. Ltd., of Johannesburg, working in conjunction with technicians from both West's & Tully Engineering Co. Ltd., and was completed in the autumn of 1959.

Dry seal mechanical grate

Each unit comprises a gasifier, carburetter, superheater and waste heat boiler. The gasifier includes a dry seal mechanical grate, driven through a hydraulic system, an annular boiler, retorts and an automatic coal charger.

The gasifier is of particular interest. Coal is fed from an overhead storage bunker by way of a lock hopper into a number of retorts above the generator. The retorts are of a design based on continuous vertical retort practice with



One of the Tully automatic control consoles.

flues for external heating in addition to the internal heating obtained by the passage through them of the hot gas from the generator.

The generator, enclosed in an annular boiler, is fitted with a dry-sealed mechanical grate driven by worm through a hydraulic power system. Clinker and ashes are collected in two ash pockets of adequate capacity.

The carburetter and superheater are designed to utilise either gas or heavy oil and contain special refractory blocks interlocked to form a stable structure with a large surface area. Oil is supplied through eight steam purged sprays.

The waste heat boiler is of the horizontal fire tube type and is provided with a refractory lined admission chamber. The outlet stack pipe incorporates a grit catcher, and both admission chamber and smoke box are connected to dust discharge valves.

The distillation, up-run and back-run gas offtakes are each provided with a wash box incorporating a dip pipe

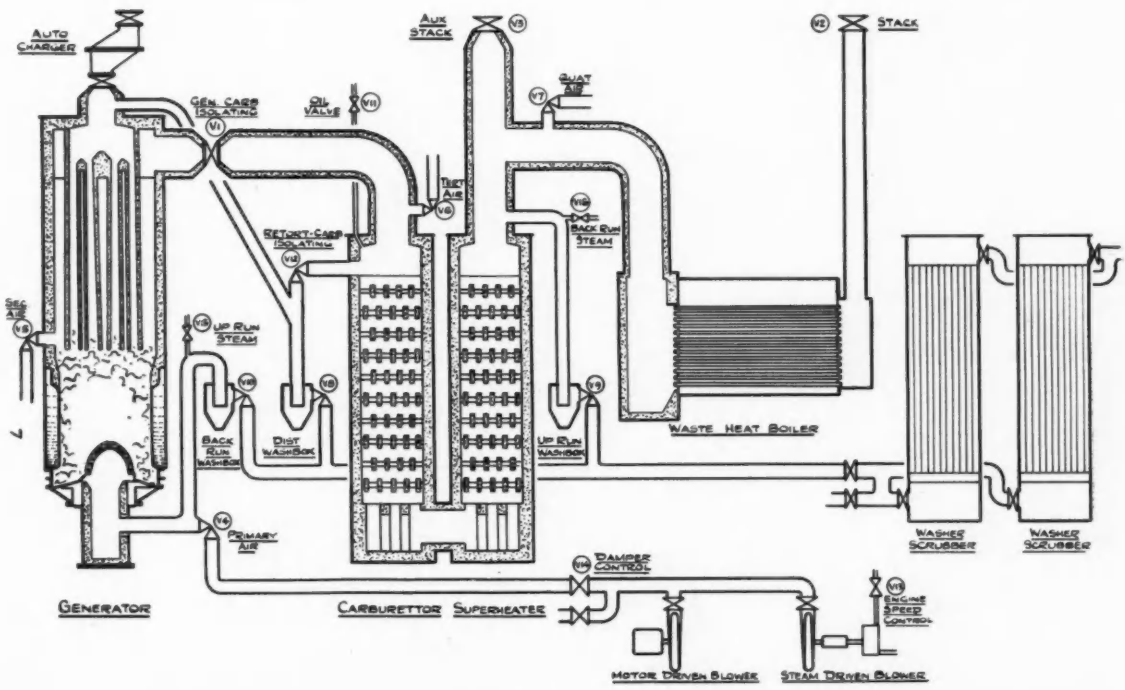
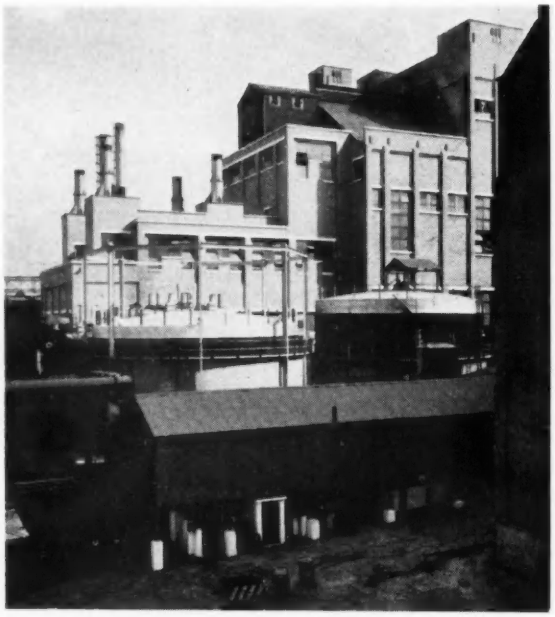


Diagram showing the Tully carburetted complete gasification process.



View of the Tully complete gasification plant in Johannesburg.

and an automatically operated stop valve. The rich gas connections contain liquor sprays for continuous flushing of tar.

Crude gas leaving the plant is passed first to a washer-scrubber and then to a condenser which cools the gas and condenses the remaining light oil constituents of the tar vapour. The washer-scrubber is a mild steel vessel filled with raschig rings supported on wooden grids. Warm liquor from the tar separating tank is pumped to this vessel and injected through sprays at the top. The condenser consists of a multi-pass water tube heat exchanger of a conventional design.

Gas passes to relief holder

From the outlet of the condenser, gas passes to a 30,000-cu.ft. capacity relief holder of riveted construction. A volume indicator is provided both in the plant control room and in the exhauster house. In addition, a high and low warning device is incorporated.

Air for the blow is provided from one of two centrifugal fans and is distributed through a manifold main to the primary, secondary, tertiary and quaternary air valves. One of the fans is powered by a steam turbine and the other by an electric motor. Each auxiliary supply is provided with two remotely controlled butterfly valves, one governing the main air flow and the other providing 'creeper' control. Air flow meters are incorporated in the system.

Both the waste heat boiler and the annular boiler provide high pressure steam which can be fed to the turbine, and the low pressure pass-out steam then feeds into the

Continued on p. 564.

Interior of the Tully complete gasification plant.

Leadership—and the presidency

By W. H. JOHNSON
M. Inst. Gas E., M. Inst. F.

THE Institution of Gas Engineers shares with republican forms of nationhood the incorporation of the function of presidency, and the similarity goes no further than that.

It would be more apt to compare the status of an Institution president to that of a constitutional monarch, in that no one expects him to do anything drastic.

Benevolence, and the ability to turn out contemporary clichés on a multitude of platforms during his year of office, satisfy the rules of the game, and if some of his points are delivered with emphasis, he receives a good press on retirement from office.

This is not intended as an indictment of any president, or of the function of presidency as it has been used; but one might enquire whether there is a more beneficial way of employing a worthwhile man's time for a whole year. On a national scale we can afford a benevolent and constitutionally restrained monarchy. Its members are trained from birth to inspire, to maintain prestige, to be the embodiment of the national ideal, and to produce nothing more than words.

From our presidents we expect the words but in all honesty very little else. And what inspiring words they are! In recent years we have heard that we should strive for a national fuel policy, better status for engineers, a more widely educated class of engineer, an infusion of new blood into the industry, and so on. And it loses much of its point when we wait, in vain, for the new prophet to continue his evangelism once he has left the high places and returned to his wilderness.

A simple example

Take—just because it is a simple example—the problem of attracting the right people to the industry. We all know that there is one great inducement. So do the 'prophets.' It is money. The wilderness to which the presidents return are not all that barren, and in the very nature of things they are men of influence both before and after their elevation. So it would not be unreasonable for them to go back and thump the table effectively.

But not the faintest echo of a tiny thump is heard, and things go on exactly as before.

Or take, if you like, that national fuel policy. Before nationalisation set in, it would have been a task of unparalleled difficulty to get the coal owners, the little gas companies, the electricity supply companies (this was before the Oil Age) to see things other than personally or parochially. But nationalisation did come—whether for better or worse is beside the point for the moment—and suddenly all the ingredients were there, ready for mixing. To use a chemical metaphor, one might have hoped for a combination, but it remains merely a heterogeneous mixture.

The oil companies try to cut each other's and everyone else's throats, and sell on the old gas slogan of heat on tap. The gas industry imports oil and oil-well products, antagonising their old allies the collieries which, for a number of reasons, are suddenly in the deep doldrums. In their turn the collieries, with all the resources of brain and manpower at their disposal, refer with pathetic nostalgia to the high grade deep seams which they have so many excuses for not mining. They must be delighted to hear that the electricity generating stations are to remain married to low-grade solid fuel for the time, just when they seemed certain to forsake the roundabout completely in favour of a nuclear swing.

This perspective should not have been needed, except that it does good occasionally to wonder why anyone bothers to ask for a national fuel policy.

Is it—or rather, should it be—a duty of the president of the Institution of Gas Engineers to use his influence to this end? Or is he rather the type of the arch-patriot, preserving during his term the ideal of Gas, free and independent? Heretical as this may well sound, the logic of an integrated fuel policy would call for a more omniscient body to represent its professional members than the institutions of gas, electrical, etc., engineers. The Institute of Fuel has, if nothing more, the right title, and ought to be reborn as the senior institution, with the others affiliated to it. Such a move sometimes seems to be not only logically justifiable, but actually desirable, if it would provide the qualified gas engineer with an incentive to seek a higher and wider qualification.

Men with wider horizons

Mr. Melvin in his presidential address this year called for men with wider horizons than specialisation provides, and here is one way to direct their energies to achieving breadth.

There has always existed in the gas industry a certain complacency, not fully to be excused by its excellent record of public service; and less likeable since the civil service type conditions of employment, promotion and so on depressed the general level of enthusiasm to a flat, rather cynical mean.

The young man who, before the war, fought for and won his first 10-mill. works command, in which he could help to charge his retorts before going out to empty his meters, or lay a service, all for four pounds a week and free gas, was an admirable figure, a personality. His modern prototype, maybe a deputy station engineer on scale APT something or other, is a nonentity by comparison. Nationalisation brought to some much more than they ever expected (or in some cases deserved) but to many more it closed the gate on a fine ambition to become individuals in their own right. The transition within the gas industry is much more profound than that represented by a Lurgi plant or a few oil-gas generators, or the reforming of a shipload of methane.

However well-intentioned or strongly expressed they may be, platitudes achieve precisely nothing, and one admires the skill with which the writers of the editorials manage to pick a note of uplift from each succeeding presidential address. But we are no longer uplifted.

To what heights could we not rise with a leader, a man who spent his busy year of grace in acting according to his mature and long-considered views? That, after all, is the presidential rôle as they see it in republican states. And even if one is strongly in opposition, there is always the next election to look forward to.

It could be so much more stimulating to the industry, through its members, than our joyless acceptance of the rather threadbare and ineffectual tradition.

Coke in a changing market

By F. A. BURDEN, Ph. D., B.Sc., A.R.C.S., D.I.C., M. Inst. Gas E., A.R.I.C.,
and
D. G. ROSE., B.Sc., Econ., F.S.S., M. Inst. Gas E., M. Inst. F.

IN problems of the fluctuations and changes of the coke market, the authors see features common to most commodity markets, but there are special difficulties arising from the fact that gas and coke present a complex example of products in joint supply. The fluctuations of supply and demand manifest themselves in stock movements that not only the public, but many within the industry, find hard to understand.

Although orthodox carbonisation of coal as a method of gas production seems to be past its peak, and elegant new processes, independent of coal, are established, it is acknowledged, by all those in the best positions to judge, that the gas industry will continue making coke for many years. The better the net return on coke, the longer will the industry be interested in making it.

In the '30s a measure of price stability was achieved in some parts of the country through the work of the coke associations, but the conditions under which these operated no longer apply. The export market was the relief valve through which surpluses were disposed of at roughly half the inland price, but the incidence of export, like the incidence of carburetted water gas, showed wide disparities between undertakings. The ratio of export to inland price is no longer favourable, and there are welcome signs that the water gas plants are at last being used in a more rational manner to the benefit of the coke market rather than in one inimical to its interests. A few per cent. more or less carburetted water gas is all that is necessary to control the situation if action be taken in good time.

Extended use of oil, in one form or another, as a raw material for gas making, instead of coal, has its counterpart in the increasing competition from oil in the commercial/industrial markets served by coke, but new opportunities have opened up, especially in the field of domestic heating, aided by developments under the Clean Air Act, and the industry has responded in the provision of fuels suitable for the job.

Variety of different fuels

For many years past it has been increasingly recognised that the term 'coke' relates to not only one, but a variety of different types of fuel, each of which possesses characteristics which make it more or less suited to specific purposes. Thus, at the first opportunity, as controls come to an end, the North Thames Gas Board placed on the market specially manufactured cokes for domestic space heating. Other gas boards have been taking similar action, and the use of proprietary names has benefited consumers by facilitating consistency of supply through channelling to the proper uses. Previously, there was much misunderstanding over the concept of quality.

It is curious that an industry that has made such a success of the sale of its main product through the sale and service of appliances should have been so hesitant over doing the same for its second product. New processes of gas making are showing the shape of things to come, and, although the ultimate represents a complete transformation (at least, so far as places away from the coal fields are concerned), no one who has studied the situation can have failed to recognise that coal-carbonising plant will be used for a long time yet, and it behoves the industry to make the most of coke in a changing market that has new scope for coke as well as gas. It has been said that the new processes will make the industry independent of the coke market: it is to be hoped that they will be so operated as to help balance the coke market, which is a very different thing.

Majority want solid smokeless fuel

To neglect the industry's coke market in any way before the public is ready to accept gas in substitution, is to neglect half of its thermal sales.

Experience in smoke-controlled areas so far, indicates that the majority wish at least to pause at the half-way house of solid smokeless fuel. The best way to ensure that in due time they will elect to use gas is to provide them meanwhile with an unequalled service based on the best appliances, gas-ignited, designed to burn the solid-fuel products of the industry.

With sources of gas alternative to coal carbonisation now at the industry's disposal, the solid-fuel products must in future stand upon their own feet to be a success commercially both with producer and distributor. There is no reason why this should not happen. It will, however, be necessary to provide a consistent supply of products possessing the qualities demanded, and this inevitably adds to the cost of preparation and distribution, but, here again, present evidence shows that the public is prepared to meet these costs if supplied with the superior product and the service it wants.

Generally speaking, each step forward along the path of technical progress in gas manufacture has led to less coke for sale relative to the amount of gas sold. A recent and notable exception, of course, is Cleanglow, which significantly increases the plant output of solid smokeless fuel.

Carburetted water gas was the first big development to

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reduce the net yield of coke for sale. Between the first and second world wars, there was available on average and fairly steadily, about 1½ therms of coke/therm of gas sold, except in 1926, when water gas plants were hard at work meeting the emergency of the General Strike.

From 1950 to 1959 the therms of gas/ton of coal increased from 71.6 in 1950-51 to 76.7 in 1958-59. This significant improvement in efficiency of carbonisation was a further extension of what had been going on previously. Since 1957, the water gas plants have been operated to help, rather than to injure, the coke market, and with the introduction of refinery gases in one form or another, the number of coke therms produced for sale to the public have for the first time dropped below the number of gas therms.

Although coke output has fallen in relation to gas, it is to be noted that the actual production for sale and the sales themselves are still above 1938 level, notwithstanding the big changes that have taken place in the coke market and the hindrances to its development during the years of shortage. It has also to be remembered that purchases of gas from coke ovens entail production of coke that is excluded from the gas industry statistics.

The acceptance of the idea that coke is a generic term covering several commodities has a number of implications, both technical and commercial: (i) The larger the number of products derived from a given range of material, the more closely must each be specified and the more important it becomes to decide whether and to what extent they may be interchangeable; (ii) the consistency and the quality at least of some of these products must be determined and controlled to closer limits than has been the case hitherto; (iii) it implies the closest contacts between the commercial and technical sides in order to ensure that technical advances in utilisation, with consequent trend in demand, are matched step by step by production changes designed to supply the desired fuel in the appropriate quantity.

Following the recommendation of the Beaver Committee that the demand for solid smokeless fuel should be met by coke, a British Standard for Coke for Domestic Open Fires was published (B.S. 3142: Part I: 1959).

The specification was designed to control both quality and consistency, and represents in general a quality level falling very close to that demanded by the consumer, although its control of consistency is somewhat less positive. It is perhaps unfortunate that it should suffer as a result of its being coupled with a reporting procedure based on statistical methods that are far from generally understood. The basis of this procedure for the examination of results perhaps becomes more intelligible and is also more simply applied if recourse is made to a graphical method as described in the appendix to this paper.

Although standards to be used throughout the industry are essential, critical appraisal is necessary at the present time, and much foresight in matching them to the future fuel requirements of the country, bearing in mind that any increase in the number of size grades produced introduces problems of production, storage and handling, and adds to costs right down the line.

DISCUSSION

Dr. J. Burns (Deputy Chairman, North Thames Gas Board): Something hit the solid fuel industry way back in 1955-56. This includes not only our own coke but the solid fuel made by the Coal Board, and other domestic solid fuels. A tremendous change took place in the years 1955 and 1956.

In those two years my own Board carbonised each year 5 mill. tons of coal, producing in round figures approximately 2 mill. tons of coke, and until then, we were perfectly happy. We sold all that we had for sale. There were no stocks left on the ground. To bring the picture right up to date, we are now carbonising 3½ mill. tons of coal, a reduction of 1½ mill. tons, with a corresponding production of coke of something over 1 mill. tons annually. The difference in gas production is made up now, of course, by the refinery gas plant.

In 1955-56, when this big change hit us, after carbonising 5 mill. tons of coal, we were left with something approaching 500,000 tons of coke on the ground. That in itself presented very great problems. There were problems of stocking, but the biggest problem of all was that 500,000 tons of material were lying on the ground and producing no income at all. Why did this happen? Simply, a straightforward revulsion on the part of the consumer to buying solid smokeless fuel.

It is interesting to see which type of coke was left on the ground. We make, as most area boards do, three main types of coke: Coke oven coke, industrial coke and domestic coke. In general, it was the industrial coke which was left on the ground. We were also hit to a lesser extent in the domestic fuel market. It was pointed out to us very clearly at that time by consumer reaction, that our product just was not good enough in terms of real value to the customer. He was prepared to use other materials, in the form of oil for central heating, etc., and we had to do something about it.

High prices paid for coal

One of our big difficulties was the very high price we had to pay for coal, and when we set out to improve the domestic fuel we had for sale, we had to take this into account. In about 1955-56, we started our investigations into making use of other raw materials for gas manufacture, and at the same time into trying to obtain a more active domestic fuel.

This led us to the manufacture of Cleanglow, of which we make some 250,000 tons per annum at the present time. Fortunately for us, we not only make it, we also sell it. Cleanglow was an interesting development. We remembered and recognised the great work done in Edinburgh; we recognised the work done at the Fuel Research Station on the carbonising of low grade coal in static retorts, but for us in the North Thames Gas Board, it was almost revolutionary carbonising practice. We had been accustomed to dealing with high rank gas coals from Durham, and going over to a low rank coal was something which was really new.

We looked around for the means by which we could give a good product to the customer, and a means by which the customer would be prepared to buy it. One of the first things we noted was the possibility of giving the customer a service by decreasing the amount of ash we sold. This was very important indeed, and we set our specification at 4% of ash in the coal. It is interesting if you think of 5 mill. tons of coal per annum with 5% of ash; that is 250,000 tons of ash which you have got to carry up and down the country. A reduction of 1% on that quantity, only coming down from 5% to 4%, is 50,000 tons of ash per annum. It costs 30s. a ton to carry coal from the North of England to London. Accordingly, our bill for carrying ash from the North of England to London will be reduced by exactly £1,500 per week, which is a big bill for doing nothing at all.

That was the other factor which impressed upon us the necessity for getting a good low ash coal. We started carbonising with low rank coal, and here I must pay tribute to the great encouragement and advice given to the North Thames Gas Board by Mr. Finlayson who assisted so very materially with his wide knowledge of carbonising practice and his advice on what we should do with these coals.

These are some of the factors which have effected changes in the North Thames Gas Board over the past few years, and they are, to some extent, representative of the industry up and down the country.

As good gas engineers, we will ask ourselves, what of the future? Are we going to be hit again by a hurricane as we were hit in 1955-56? Remembering the gigantic failure of the prophets in 1955, each and every one of us will be very careful about making any prophecy we think to be false or true in the future.

The oil and solid smokeless fuel industry have to some extent settled down but I do not think there is any doubt with the improved standard of living and the increase in amenities now enjoyed in this country, that the people are going to demand the greatest possible convenience and the greatest possible labour-saving with the maximum possible leisure time, and there will be a tendency away from solid smokeless fuels.

Mr. W. Hodkinson, O.B.E. (Deputy Chairman, North Western Gas Board): The authors make a telling point when they remind us that some 50% of this industry's contribution to the overall fuel demand of the country is presently provided by coke and, therefore, in its absence, we as an industry would be pretty small beer in the energy field. They make the further point that these therms have been sold at a fraction of the cost required to sell an equivalent number of gas therms—how true, and what is it going to cost us, and how long will it take to sell the eight or 10 mill. whole house heating schemes required to replace the therms presently turned out in the form of coke?

Indeed, are the authors right when they remind us that there is danger in studying the more distant future so intently that one fails to appreciate the breadth of the immediate view?

I am a keen supporter of a long-term piped fuel policy, but until we have both the production processes and the appliances, at the right price, to take over the therms presently sold as coke, I believe, with the authors, that we should bend our effort to placing our solid fuel market on a sensibly planned basis. Remembering Sir Harold Smith's sound comment, 'The consumer is going to decide,' we much realise that he will indeed decide—and forcibly—in the next year or two on the subject of smokeless fuel quality, and the effect of his decision on this industry could be far reaching.

Enormous market for solid fuel

The market for solid fuel is enormous and, let us face it, will remain so for many years; I believe we can have a sizeable slice of it, and at economic prices, if we set out to provide the right types of smokeless fuel, each tailor-made and under quality control to meet not the requirements of a process but the requirements of the customer. This I believe applies equally in the industrial market as in the domestic market, and those of us who now have had experience in the marketing of specialised smokeless fuels are beginning to appreciate that, over a wide band of customers, the price factor is within reason, secondary to the quality and utility of the product.

The Clean Air Act opens up a wide field for the development of specialised fuels and while many of us have felt that the implementation of the Act has been disappointingly slow, there is now every indication that the tempo is being stepped up, and that the next two to three years will see a great deal of activity in this direction. Obviously, we will fight for as much as possible of this potential to be directed to our piped fuel, but, at this stage inevitably, a major portion will be taken by solid smokeless fuel, and in the North Western area alone, the total quantity of solid fuels required for domestic purposes in the smoke control areas already approved in principle amounts to no less than 400,000 tons per annum.

Competition for such a valuable market is obviously going to be extremely keen, but we are already in a strong position in relation to our competitors, and if the problems involved are tackled vigorously and courageously, we have the opportunity to capture the lion's share of this market.

There will be problems of marketing organisation to be faced both by the industry and by the distributive trade in order to meet the exacting demands of the domestic market.

Services will cost money

Items such as works' handling and bagging facilities and transport and delivery services will all have to be geared to meet the higher incidences of peak loading which the domestic market entails. These services will cost money but the public know that clean air, like clean water, costs money and I believe they are prepared to face the bill, always providing they get value for money in the form of product, quality and service.

The North Thames Board were absolutely right, when introducing Gloco, to set themselves both a higher standard of quality and a higher degree of consistency than that required by the British Standard, and we in the north-west have refrained from introducing Gloco until we are satisfied that we can meet in tonnage their specification.

Mr. T. W. Austen (Woodall-Duckham Construction Co. Ltd.) Although majority thought in the gas industry is moving towards complete gasification and tends to regard coke as somewhat of a nuisance, I think it is very useful that we should, for the second year running, have had a 'coke' paper at an I.G.E. meeting. Indeed, many of us still have faith in coke and the part it can play in the future economics of our industry.

Some people believe that in the not very distant future, all domestic fuel will be piped. This may or may not be so; it will depend on the amount of money the public can afford to spend on fuel, but during the interim period, there could be considerable profit made on solid smokeless fuels which could have a significant effect on reducing the gas industry's overheads and helping the competitive position of gas as against oil and electricity.

Insofar as the open fire market is concerned—and I stress the open fire market—the gas industry should immediately cease to sell coke by that name; its lack of consistency and often poor reactivity in the past have caused the public to look upon it with suspicion and, indeed, at times, with derision. Obviously, the right psychological approach is to call it Cleanglow, Phimax, Gloco, Sebrite, etc., which, by virtue of the fact that they are sold at a premium induces bigger efforts towards consistency and quality of product.

Here, we should take cognisance of Clause 63 in the Peech Committee Report and not use too many special names; they become confusing.

Dr. Burns has already told us this morning about sales of Cleanglow in London, and I think we ought to remind ourselves of the potential advantages of marketing Cleanglow in certain gas board areas. Dr. Burns and Mr. Moys gave a paper in 1956 to the Institute of Fuel Conference on Domestic Heating and it was very clearly shown that

the geographical position of London relative to the coalfields of Yorkshire and the coalfields of the East Midlands was such that Cleanglow made from East Midlands Coal could be sold at the same price as coke made from Yorkshire coals in continuous vertical retorts. Of course, this is undoubtedly not true today because in March, 1958, there was the inevitable change in coal price structure; but there is no doubt that, even today, Cleanglow production could lead to a reduction in the price of gas manufacture, or at least prevent the price increase in gas when labour, overheads, etc., rise.

If Gloco is to sell equally well, I think the industry will need to give very considerable thought to limiting the number of coals carbonised on any particular works. The use of one or two coals is infinitely preferable to the use of five or six.

Requirements for solid smokeless fuel

In April this year, the Peech Committee reported on the requirements for solid smokeless fuel arising from the implementation of the Clean Air Act. By 1965, the Committee think that the annual demand for specially reactive fuels of the Phimax, Cleanglow type will increase by 1 mill. tons, open fire coke by 3 mill. tons and closed stove coke by ½ mill. tons—a 4½ mill. ton increase.

This increase of stove coke of ½ mill. tons a year could be a gross underestimate if the gas industry made a real effort to sell openable stoves which are efficient as well as being attractive.

When you visit most gas board showrooms you generally see a couple of open fires tucked away in a corner but rarely, if ever, do you see one of these attractive openable stoves. Invariably, one learns that these are sold only by builders' merchants, and if this is so, I think the time has come when the methods adopted by the North Thames Gas Board for selling this type of appliance, which you can read about on [p. 25], should be universally applied throughout the industry. Clause 73 of the Peech Committee Report stresses the need for emphasising the virtues of the openable stove.

Coke has, for a long time, been considered as a poor relation but the opportunities envisaged by the Peech Report should make us more aware to the need for lines of research for the future.

Much thought and time has been given to catalysts for turning oil or liquid petroleum gases into town gas, and a more catalytic approach to coke quality is overdue. In March, an excellent paper was given by Fuidge to the London and Southern Section of the I.G.E., which showed the beneficial effects of adding 4% of peat to coal on the reactivity of coke made from Durham coal by static carbonisation.

There are other additives, such as sawdust, that are worth exploring. The paper given to this Institution by Thomas and Askey in 1940 dealing with the addition of limestone and sodium carbonate to the coal before carbonisation in order to produce a very reactive coke called Dryco is very pertinent today and well worth re-reading.

I agree wholeheartedly with the authors' contention on [p. 2] of the paper that the present size grading structure of the coke may have to be reconsidered in order to satisfy the public, because, since the structure came into being, many new appliances have come on to the market, and there may well come a time when we shall again be short of coke; and it is well worth remembering that almost any existing carbonising plant can be easily, quickly and cheaply modified so that up to 40% of the heat requirements of the setting can be supplied by town gas without upsetting in any way the working of the plant. By this means, the total saleable output of coke could be increased by amounts varying from about 10% to as much as 40% at periods of low gas demand by keeping the plant at full output.

Finally, I would like to ask the authors if they think that the increased domestic demand for solid smokeless fuel in 1965, envisaged by the Peech Committee could be met by existing coal carbonising plant, and whether they think that plants at present shut down will have to be restarted.

Mr. W. A. P. Hoskin (Works General Manager, The Barnsley District Coking Co. Ltd.); Although we have been thrilled this week with the exciting new forms of fuel production and gasmaking, we are brought back by the authors very solidly to our feet, when they remind us that the conventional forms of fuel production will be with us for a very long time and that we will not be able to drop coke as many might like to do, in the same way as, in the past, we forgot all about that other very lucrative by-product, sulphate of ammonia.

Perhaps it is sacrilege for me to say here that we have been reminded recently that coke is the cheapest form of heating from the smokeless fuel point of view. My angle on this paper is entirely one from the coke oven industry wherein our desire is to produce mainly blast furnace coke, as Dr. Burns has done and is doing at Beckton. He is very much more in the picture even than I am on this, and we cannot enter into this exciting, fascinating world of finding new names for a fuel which we cannot easily change.

Our market is now hard coke, where the majority has to go to blast furnace production, and yet we have become over the past decade a very important form of base load production of gas for the gas industry. Of the coke that the coke oven industry produces, 25% has to be found a market in the domestic and industrial fields, or used in some other way.

We are reminded in the paper that four years ago, there was no ceiling and our stocking grounds were swept clean, but that has changed and yet there is this tremendous demand for coke oven gas. What is the answer? It is difficult to say, except, broadly speaking, we admit that probably hard coke is not, by any means, an ideal open-fire fuel. It does form a very excellent type of fuel for the closed appliances.

Gas-firing of the coke oven

One other point is the producer gas-firing of the coke oven, which can be developed if the economics of the price of gas to the gas industry could meet it. The present price of coke oven gas is in the neighbourhood of about 6d. a therm, whereas it is almost impossible to produce producer gas under 9d. or perhaps 10d. a therm, so there is a very real difference there.

We know the steel industry has a fuel in the blast furnace gas which makes their economics so very different from those who are producing coke and gas purely from the merchant's standpoint. But the whole future of coke, as we see it, is not so much that of finding these names, which are doing such a lot to stimulate the market for solid smokeless fuels, but in the way we can develop the coke oven in the future to become an even more flexible base load producer of gas and use some of the coke that is on the market; or, as Dr. Burns has so rightly stressed, the coal industry's ability to sell us better coal at a cheaper price. I do not say that with any facetiousness; I think it is a problem that has to be met, if competition can be successfully overcome.

Mr. G. J. B. Cox (Deputy Divisional Manager, Scottish Gas Board, Edinburgh): Previous speakers have dwelt on the wider aspect of the production of solid smokeless fuel. I want just to mention three points of detail, on which

perhaps the authors might be able to give me some guidance.

My first point is on the rather difficult question of approved appliances. Up here in Edinburgh and, I am sure, in many other parts of the country, the local authorities have generally used the list approved by the Domestic Solid Fuel Appliances Approved Council; there is also the Gas Council's own coke burning appliances Handbook. It is unfortunate that many of the appliances in the list our local authorities use, while perfectly suitable for Coalite and other fuels of that nature, and probably for coke—under whatsoever name it goes—under test conditions, are not always suitable in the home under normal somewhat haphazard domestic supervision. Might not the Gas Council's Coke Burning Appliances Handbook tend to become the list which is used by our local authorities for this purpose and not the other?

Statistical analysis of tests

My second point is on the question of the statistical analysis of the tests referred to on [p. 23]. I must agree with the authors' statement that the description of the procedure is in such terms as to make it appear unduly laborious to production staff and almost unintelligible to the casual reader. I did not think that I was a casual reader but after having read it, I decided I must be! I did wonder—and this is a suggestion which has been put forward by members of the Board's technical staff—whether a rather more simple points system of assessing the value of coke might be considered, whereby points could be given for moisture content, ignition time and first, second and third peaks, the number of points being dependent on how far above the specified figure you were; you could then arrive at one single figure total for the particular coke in question. We all know that cokes, whatever their name may be, vary in various parts of the country, and there are cokes with a very good ignition time and not an awfully good third peak, both above the specification; equally, there are cokes going the other way. I do feel that, for the works staff who are doing day-to-day control of coke quality, something of the sort might be of assistance.

I would agree with these speakers who have noted, as we have up here, the trend away from solid smokeless fuels. I think that there is no doubt whatsoever that coke, whether we call it Cleanglow, Phimax or whatever it may be, is a fuel very much of the present, but I think the average housewife is drifting away from solid smokeless fuels. We must obviously do everything within our power to get the solid smokeless fuels marketed, because at least by that means, we do get a permanent foothold in the houses and our services will, I hope, mean that once they have really gone away from the solid fuels, they will still be able to deal with us for the piped fuel.

Sir Henry Jones, M.B.E., (Chairman, The Gas Council): The gas industry holds substantial stocks of coke. We have carbonising plant which in some cases is underemployed, and in some cases there is carbonising plant, serviceable but not employed at all. On the other hand, we have, as the Peech Committee have found, the probability of an increasing demand for solid smokeless fuel arising from the implementation of the Clean Air Act, and also from the wish of members of the public outside the smoke control areas to stop emitting smoke from their chimneys.

Coke has a name among sections of the public, which is not very good because its quality has varied in the past. If coke is to be sold for the open fire in increasing quantities to displace smokey fuel, its quality has got to be such that the housewife will not find that one consignment of coke is very good and the next consignment is not so good. The development of these named fuels is a tremendous step forward in ensuring that the supply of coke is not only good but consistently good.

One of the reasons why coke in the past has not received as much attention from some gas engineers as the authors of the paper think it should have, derives from what my friend Dr. Burns calls the K:C ratio. It has been true, and is still true today in some parts of the country, that, arising from the conditions at many gasworks (I am not criticising) a ton of coal costs the retort house very much the same price as the value of coke per ton leaving that retort house. That means that the gasworks, which after all is built to make gas, pays £6 a ton for coal arriving at the retort house and sells half that coal at the same price as coke at £6 a ton. You therefore get £3 back. The gas engineer, for his efforts, has passed half a ton of solid fuel through his gasworks and has not even got more than 12d. out of a shilling in return; that is not a price relationship which gives rise to enthusiasm.

The reason for this is that the coke if sold as ordinary coke—I am going back a year or two now— is competing with house coal which is priced on the same sort of basis as the carbonising coal into the gas works, or sometimes on a somewhat lower basis when it leaves the pit. As a result, to get a higher price for coke than is being charged for the ordinary current grades of house coal the consumer must be convinced that coke is more efficient than coal.

We all know it is and the accepted figure is, 16 cwt. of Gloco will give the same heat in the domestic fireplace as 1 ton of domestic coal. What have you got to do? You have got to convince the consumer that an improved grate should be installed with gas ignition, and then supply a very carefully controlled fuel to ensure good service. The margin is very fine and the profit not very great, but if you lose sales of coke, you can only save large sums on your coal bill if we can find other means of making gas.

Improved grates are needed

What I want to see is this: When you come to the more reactive fuels such as Cleanglow and Phimax, you are really working in a different market. It may be that, however successful we are—and we have got to be very successful if coke is to go on being made in the retort houses we already have—we must get a lot of improved grates installed with gas ignition and sell a lot of good quality coke of the specification type, such as Gloco. However, we have another market we can exploit if we so wish, and in that market we are selling such fuels as Cleanglow and Phimax, which are able to be made from a coal which, under the present price structure, is often a cheaper coal than the carbonising coals of higher caking quality which we customarily use. You are starting therefore with what ought to be a cheaper raw material and selling against people who do not make much gas, if any. They have got to get all their income from the solid smokeless fuel they sell, and from the oils and spirits and chemicals which they get from the coal. However much they do in fact get from these sources, I do not believe they can live on a K:C ratio of one, which the gas industry has had to live on in some parts of the country. I should think a ratio of 1.5 or 1.6:1 is necessary to operate on a good commercial basis. Where suitable coals are obtainable at suitable prices it is possible if one is willing to make Cleanglow and Phimax, to sell the resulting product in a market which is not necessarily related to the house coal price in the same way that coke is; the people who want it are willing to pay more for a better fuel, as is seen by the sales of these reactive fuels. Referring to Cleanglow, the authors say, 'In its second season, sales so went ahead

A CENTURY OF TUBEMAKING

STEWARTS AND LLOYDS, with a hundred years' experience behind them, are one of the largest manufacturers of steel tubes in the world.

They have an up-to-date research department, which enables them to meet all the requirements of the recent technical advances in pipeline design and construction, including various forms of protection against corrosion.

The Company mines iron ore and makes its own iron and steel. Their production engineers are thus able to maintain quality control from raw material to finished tube. This results in a high standard of product that is to-day widely recognised.

S & L tubes have been used on all the major high pressure gas grids in Great Britain, and also for the conveyance of natural gas in many parts of the world.

Stewarts and Lloyds' production and service engineers will be pleased to discuss any problem associated with steel pipelines.

Projects featured:

TOP: *Scottish Gas Board's 120 mile high-pressure main.*
CENTRE: *North Thames Gas Board's 18 mile refinery gas pipeline.*
BOTTOM: *Southern Gas Board's 130 mile high-pressure integration main.*

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that not only were the stocks soon cleared, but the increasing output found ready sale at all times of the year and the future of this fuel was assured.' That fuel was not as cheap as coke; it took more trouble to make, but we have heard the economics were by no means unsatisfactory. So we have this market for a solid smokeless fuel; we have carbonising plant; we in the gas industry have it in our power—at any rate until such time as the public want taps to turn their fuel on and off—of being able to go a long way towards meeting the needs of the public and the Clean Air Act, and of being able to clean up the skies and stop those horrible chimneys pouring out their dirty smoke in the middle of summer into the skies of Edinburgh.

Dr. E. A. C. Chamberlain (Area Scientist, Coal Survey Laboratory, National Coal Board): I have been tempted to take part in this discussion by the remarks made by Dr. Burns on the subject of producing cokes, or perhaps more familiar to us in Scotland, chars. As a one-time employee of a not unknown gas company in the South of England, when I came to Scotland and was responsible for quality control of the Scottish coals produced by the Coal Board, I was most impressed by the pioneering work that had been done by Jameson and King in the production of grain coal. In carrying out tests with chars, or cokes, produced from low rank coals, I was impressed by the reactivity of those fuels and their obvious acceptability for improved open fires. I have said 'improved open fires' because we must face the fact that, in a very large number of households in Scotland, where the main source of water heating is the back boiler, the ordinary stool bottom open grate does not lend itself easily to the burning of even the more reactive cokes that are produced by the gas industry.

The question of suitable coal

On the question of suitable coal, and the question of ash content, it was frequently said that the gas industry could only produce cokes of the quality dictated by the coal they got. This, to some extent, is true in relation to ash. There are geological problems, and the fact that we produce most of our coals from the upper and lower carboniferous limestone stratas, makes the problem of ash a real one, and the Coal Board in Scotland have very carefully reviewed this, in collaboration with the Scottish Gas Board, and the working party has been working seriously on this problem for many months. We feel that we can give you coals suitable for the production of coke of the quality that would be acceptable in the domestic market; and I am convinced that it is the gas industry, and the gas industry alone, that can implement the Clean Air Act. You have the 'know-how,' you have the ability to make a balance between gas production and coke production, which no other unit or individual, either the Coal Board or external industry, can achieve. Only you can do it, and it is our responsibility to try to give you the coals you require.

Here again, when we come back to the statement that you can only produce cokes of the quality dictated by the ash the Coal Board can give you in the coal, I would say, in the past, particularly in Scotland, very little attention has been paid to the close grading of coke, and I think this is where the authors are to be congratulated; I think the present trend in your specification of coke is the most important step forward we have seen in the solid fuel industry for many, many years. Any of you who have done tests will realise how intimately performance is controlled not only by coke quality but also in close grain size.

Mr. Burden, replying: Mr. Austen's question about the necessary increase in production of high quality smokeless fuels has, I think, already been partly answered by Sir Henry, but it is a question which does require very careful thought. Undoubtedly, if the present plant is used in the present way, there will be great difficulty in meeting requirements; but with existing plant, with modfications of procedure and with the limitation of coal variety which was also mentioned, very much can be done to produce a domestic fuel of acceptable quality. I believe that, by work on existing plant, with existing coals, we can go quite a long way towards producing an acceptable fuel for the consumer.

Mr. Cox asked about approved appliances: this goes back rather into history. The difference between the CUC.SSFF list and the Gas Council's list originated because the tests for the CUC.SSFF list were carried out by the Fuel Research Station; the Gas Council's list was compiled from tests on appliances submitted to the Gas Council by manufacturers. Obviously, we had not got the facilities at that time to test as many appliances as the Fuel Research Station. That situation is rapidly righting itself since the Gas Council assumed responsibility, with the other bodies, for the national testing of appliances; and you will find that, as time goes on, and the appliances in the list become obsolete, so the Gas Council's list will coincide more and more nearly with the CUC.SSFF list.

Finally, on the statistics and the points system for assessing cokes, this is a very difficult problem. I would very much like to see a points system, but it has taken us about three years to work out the test procedure and the reporting procedure that we have already. If we had gone on to work out a points system, I am quite sure it would have taken at least six years to decide what we were going to give points for and how many—and the next consumer would have wanted a different rating, so it did not matter anyway.

SOUTH AFRICA

CONTINUED FROM P.554

process steam manifold supply. The system incorporates an accumulator. If the electric fan is in use, process steam is obtained through a reducing valve.

Operation of the process valves is controlled by the Tully electro-hydraulic control gear. Briefly, this consists of a ring main fed from a hydraulic supply system, incorporating accumulator storage which feeds the various slave cylinders. Electrically operated four-way reversing valves control the flow of hydraulic fluid to and from the slave cylinders, and each control valve is selected from a drum controller. The master drum controller is electrically driven and controlled by an electronic timing bank which consists of an individual timer for each phase of the cycle. In the event of a power cut all control valves are automatically returned to a position such that each slave cylinder places its valve into the 'safety' position, i.e., with all plant valves closed except the stack valve. Further safety is provided by a system of electrical interlocks.

Integrating and indicating instruments are provided to measure pressure, temperature and fluid flows for the various plant supplies. Some of the more essential instruments are mounted on the controller console and the others on an independent panel.

When construction and checking was completed, preliminary runs were carried out on both plants, on a day to day basis, for test purposes and to train the personnel. These operations were suspended over the mid-summer holiday period (December/January) and were resumed in mid-February when the plant went into full production. After a successful period of operation, with outputs comfortably in excess of guarantee, the municipality accepted the installation and all U.K. personnel returned home.

NALGO CONFERENCE AT BRIGHTON DISCUSSES CONTROVERSIAL QUESTIONS

SENIOR OFFICERS' PAY PROBE

'Never had it so good' untrue of gas staffs, claims organiser

GAS staffs were certainly not among those who had 'never had it so good,' said Mr. G. W. Phillips, gas staffs organiser of the National Association of Local Government Officers at the Association's conference held at Brighton on June 14-17.

Mr. Phillips was reporting on the year's activities to a special meeting of gas industry delegates held before the conference opened. His speech dealt with pay, redundancy, NALGO membership, relations between NALGO and the British Gas Staffs Association and other controversial questions.

Fair comparison

The current claim before the National Joint Council for Gas Staffs, said Mr. Phillips, was to place the pay of gas staffs on a basis of fair comparison with that paid to similar staff by good employers. The industry could not hope to make progress unless it was willing and able to compete for staff on terms which bore a reasonable relation to those paid by employers outside. In his view gas staffs had not shared in the general prosperity of the country; they were certainly not among those who had 'never had it so good.'

NALGO believed, Mr. Phillips went on, that the senior officers in the gas industry were poorly paid for the heavy responsibilities they carried, but it was impossible to be sure of this because of the lack of information about salaries actually paid. A small-scale investigation conducted by NALGO tended to confirm this impression but more was needed. A much wider enquiry was now being conducted.

Information needed

Senior officers in membership of organisations represented on the Senior Officers Joint Council had been invited to provide comprehensive information about their posts and their salaries. It was hoped that the response would be sufficient to enable the officers' side to have adequate information for whatever action was needed to put matters right.

The problem of redundancy, said Mr. Phillips, did not appear to be as serious as had once been feared. Area boards had kept the trade unions informed.

Continued on p. 570

NEWS SUPPLEMENT

Gas governors now mandatory

THE fitting of gas governors on water heaters is now mandatory as a result of an agreement between the Gas Council and the manufacturers of these appliances. On appliances where no governor was fitted in the past, it will in most cases either be fitted on the gas inlet or be supplied as a separate item to be fitted in the supply line.

The use of gas governors is almost universally adopted on cookers and hearth fires, and their use on refrigerators and central heating boilers is a British Standard requirement.

From the point of view of maintenance and the standard of service required from an instantaneous water heater, which depends so much on ensuring the correct heat input, the provision of a gas governor is more important than on other appliances.

SOUTH EASTERN BOARD RAISES GAS PRICE

THE South Eastern Gas Board is to increase its gas prices from July 11, it was announced at a meeting of the area's Consultative Council yesterday. The changes will cost the average domestic consumer an extra 4d. to 6d. a week.

Announcing the changes, Mr. R. N. Bruce, Chairman of the Board, stated that the new proposals offered gas at a competitive price to domestic users willing to use large quantities.

The changes are as follows:

An increase in the flat rate of 2½d. a therm, making a flat rate of 26½d. for the inner district and 27½d. for the outer.

Secondly, to raise the two domestic two-part tariffs by 1d. per therm without changing the standing charges. With a standing charge of 26s. 0d. per quarter this will mean a commodity charge of 18d. per therm for the inner district and 19d. for the outer. On the two-part domestic tariff, with a 39s. 0d. standing charge, it will mean 16d. for the inner district, 17d. for the outer.

Finally, it is proposed to slightly change the structure and presentation of the block tariffs. The prices will be expressed as pence per therm instead of by percentage discounts from the flat rate.

Increases in price will be less than would apply under the present structure for all but the first block of each tariff.

The South Western Gas Board announced this week that it will not be increasing the price of gas.

The Duke of Edinburgh had a nine-minute lesson on how to make chicken soufflé when he accompanied the Queen on a visit to the Royal Highland Show. He is pictured here watching Mrs. Aileen Mackay, home service adviser, on the Scottish Gas Board stand. With him are Mr. Sydney Smith, C.B.E., Board Chairman; Mr. D. D. Melvin, Board Member; and Mr. David Beavis, General Manager, Edinburgh and South-Eastern Division.

SCOTTISH STAFF CONFERENCE

The big new shuffle to bring administration up to date

A 'FURTHER major reorganisational development,' which will make the Scottish Gas Board as up to date as any in the country, was announced at the Board's staff conference—the fourth of a series—at Peebles last week by the Board's Chairman, Mr. Sydney Smith.

'This will not involve any problem of redundancy, nor disturbance of gradings,' said Mr. Smith, 'and I believe that we have now evolved the best possible streamlined administrative machinery to enable us effectively to cope with our many urgent problems.'

He explained that the appointment of Mr. H. R. Hart as Deputy Chairman of the Board created a vacancy for a general manager of the Glasgow and Western Division. This, and the fact that the super grid would interconnect the three divisions, presented the opportunity to consider the consolidation of the functional form of organisation, to be based upon Board headquarters through appropriate functional officers.

In the case of production, the move had become necessary in preparation for the Lurgi plant at Westfield coming on stream towards the end of 1960 or in the early days of 1961. It would be essential to have a fully-co-ordinated plan of production for all works connected to the grid throughout the industrial belt of Scotland. To do this, with the ability to send gas flowing into the interconnected grids from the grid-connected works, central planning and control would be indispensable.

The Board's decision to introduce mechanised accounting at Glasgow, Edinburgh and Perth, together with the possible installation of an electronic computer to serve the whole Board area, made central planning and direction necessary.

Managers Free to do the job

All that would be necessary would be to sever divisional responsibility for these two services and bring them under the control of their respective heads of departments established at Board headquarters. Such a move would mean that the divisional general managers would be free to concentrate their energies upon customer service, sales of gas and of appliances, and local distribution of gas as distinct from grid distribution.

Mr. Smith stated that two new appointments had been created—an area manager and a production manager and grid controller. In the case of the area manager, this would enable central direction and greater co-ordination in the sections under this officer. In the case of the production manager, the importance of the production function and the need for central planning made this appointment necessary if each branch of the engineering function was to receive concentrated specialist supervision.

The word 'general' had been dropped from the title 'general manager.' The latter served to describe responsibility for all functions, and this, of course, no longer applied. 'Consumer service' had been changed to 'customer service'. 'Consumer' implied or described a user of gas; 'customer' covered a purchaser of any of the commodities marketed by the Board.

'It will be seen,' Mr. Smith added, 'that this move forward consists of drawing together, under the specialist functional officers at Board headquarters, the various functions which presently exist in the divisions. It will affect only a few existing senior officers, and the posts will be filled without the engagement of additional staff.

No room for self-satisfaction

Reviewing the year's events, Mr. Smith said that they had made real progress in many directions, but there was no room for self-satisfaction. He added: 'Whatever be the difficulties which we encounter in a time of swiftly-developing technology, changing social habits, constant economic tension and strong competition between the fuel industries, we can claim with confidence that, year by year, the positive shape of a new Scottish gas industry is emerging. I would like to thank all our employees who, by hard work and loyal service, are helping to open the way towards a more prosperous future.'

Westfield and its Lurgi plant are never far away from Scottish gas conferences, and Mr. Smith revealed that 'very good progress' was being made with construction work. It was now expected that the plant would be supplying gas to the grid (15 mill. cu.ft. a day) towards the end of 1960 or early in 1961. The second stage (to produce 30 mill. cu.ft. a day) would be completed a year later. 'As originally planned, it was estimated that two years would elapse between the completion of the first stage and the completion of the second stage. The fact that this interval has now been halved is, of course, of great economic value to us.'

Good progress, he added, had also been made on the construction of the high-pressure pipeline which would distribute the gas from Westfield.

Mr. Smith recalled that a year ago he suggested that with the relaxation of hire-purchase restrictions and the strengthening of their service and sales organisation, they ought to be able to reach a figure of at least £3.5 mill. in the total value of appliances sold, and that they should set their sights at £4 mill. 'In the event, the total value of appliance sales amounted to £3,964,121, as compared with £2,348,885 reported last year—an increase of 69%. 'The efforts which have been made are most commendable; they show what can be done; and the Board are grateful to all concerned. It is essential, however, that the rate of increase be maintained and, if possible, improved. The recently-introduced hire-purchase restrictions must be looked upon as no more than a challenge to our ability to sell.'

The report on other sales was less cheerful. The fall in domestic consumption of gas and in inland sales of coke continued. Industrial gas sales increased by 9%, falling just short of the target figure of a 10% increase. As for future sales, the most promising development was the successful conclusion of negotiations with Colvilles Ltd. for the use of town gas on the process plant to be installed in their new cold-strip mill at Ravenscraig. The load, scheduled to commence in October, 1961, should take volumes in excess of 1,000 mill. cu.ft. a year by the end of 1963.

Need for obtaining new gas loads

Mr. Smith added that the progress made in developing the industrial load was indeed encouraging, but this load was always quick to react to any variations in the degree of industrial prosperity. It was therefore all the more important that they should have a solid domestic load as the basis of their revenue. There must also be a greater diversity in appliance sales, and more attention to obtaining new loads, especially in the field of central heating.

It was surprising and disappointing, he commented, that the percentage of total sales as a result of the prospect card scheme had fallen quite substantially. He had come across this statement in New York recently: 'The sales department is not the whole company, but in the most successful companies the whole company

IS the sales department.' There was a moral in that, worth noting.

From the mass of statistics presented by the chairman it emerged that, despite excellent relationships with the trade unions, 644 man-days were lost through unofficial stoppages of work. 'These stoppages,' he said, 'must be regarded in a proper perspective. The 644 man-days lost represent three unofficial stoppages quite unconnected one with the other. Statistically they mean that the time lost through trade disputes during the year represented two-hundredths of 1% of the total man-days workable by the Board's employees.'

Could have avoided controversy

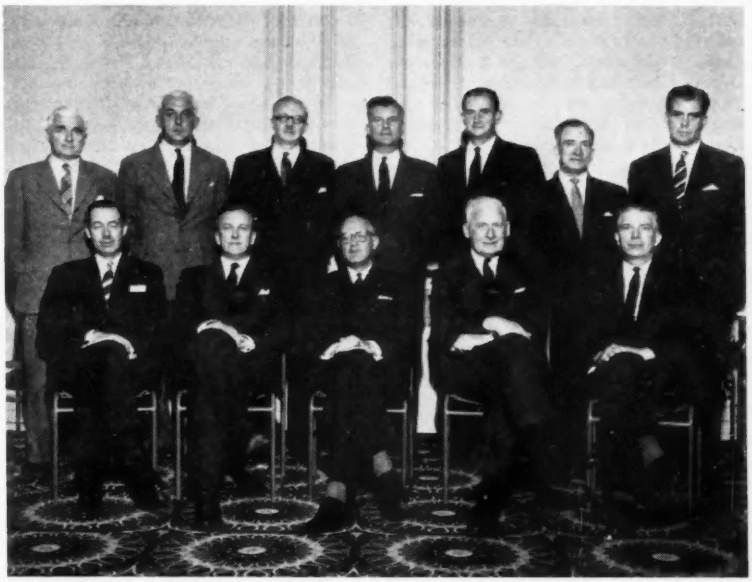
Mr. Smith's concluding reference was to the controversy aroused by the introduction of a standing charge into the structure of the standard domestic tariff. 'There is no doubt,' he said, 'that we under-estimated the need adequately to explain in advance the reason for taking this step. Had we ensured that all employees, especially those coming into direct contact with the public, fully understood why a small standing charge was the most fair and equitable way of spreading the fixed costs of supply over all our customers, a great deal of controversy would undoubtedly have been avoided.

This experience has shown us that it is absolutely essential that the practical implications of policy decisions of this kind should be clearly understood at every level throughout the Board's organisation, and that it is an important function of management at every stage to see that such information is clearly, properly and appropriately disseminated.'

Mr. Smith added that responsible opinion accepted the principle involved as an honest tariff, as indeed it was. 'However,' he stated, 'we are dealing with human beings who are not always responsible, but often prone to act on impulse, even if it is to their own disadvantage. It may be that if the standing charge has become an irritant which, regardless of its equity, makes the use of gas unattractive to many customers, we should be well advised to adapt the principle to the human realities of the situation.'

Following this massive record of their own doings—it took Mr. Smith the best part of an hour to deliver it—members turned to a consideration of the problems of training for management and supervision, a topic introduced by a paper by Mr. R. J. Faulkner, the Board's education and Training Officer. He listed among the essential supervisory skills those of ability to plan, to organise, to co-ordinate, to take positive action, and to ensure proper control.

One vital aspect that must always be kept in mind was good human relations. Unfortunately they were to a large extent victims of a system designed primarily to produce specialists in engineering, selling and accounting, and which inadequately recognised the importance of the supervisory skills required. Much more training was needed for management, both 'on the job' and by formal courses.



Senior officers at the Scottish Gas Board Staff Conference. Standing, from left: Mr. W. Nicol Baird, General Manager, Central and Northern Division to be Divisional Manager, Central and Northern Division: Mr. G. J. B. Cox, Deputy General Manager, Edinburgh and South-Eastern Division to be Divisional Manager, Edinburgh and South-Eastern Division; Mr. A. F. Pollock, Chief Financial Officer, no change; Mr. T. S. Ricketts, Chief Engineer, no change; Mr. E. G. Smith, Deputy General Manager, Glasgow and Western Division to be Production Manager and Grid Controller; Mr. C. Murdoch, Staff Relations Adviser to be Personnel Manager; Mr. A. McFadyen, Controller of Sales, Glasgow and Western Division to be Divisional Manager, Glasgow and Western Division. Sitting from left: Mr. D. Beavis, General Manager, Edinburgh and South-Eastern Division to be Area Manager; Mr. H. R. Hart, Deputy Chairman; Mr. Sydney Smith, C.B.E., the Chairman; Mr. D. D. Melvin, Board Member; and Mr. A. T. Herd, Secretary.

Members showed no disposition to take it all for granted. There were thoughtful contributions to an interesting discussion from all sections. It had its brighter moments, too. Mr. A. L. Cockrill, British Gas Staff Association, commenting on the many quotations that had decorated the talk, apologised for not burrowing farther into Euripides. 'I am a Socrates fan myself,' he explained. He was succeeded by Mr. A. Whipp, N.U.G.M.W., and C. C. Drury, N.A.L.G.O.—which prompted the next visitor to the rostrum, Mr. D. E. Moore, Glasgow, to observe: 'I think this rally of trade unionists might like to hear a word from the gas industry.'

Other participants in the discussion were Mr. J. E. Brandon, Glasgow; Mr. F. B. Kerr, Paisley; Mr. B. Preston, Headquarters; Mr. G. M. Murray, Headquarters; and Mr. J. Scott, Glasgow.

The second day opened with a session for the salesmen (who, by Mr. Smith's definition, would be everybody). Mr. D. R. Griffiths, director of the Incorporated Sales Managers' Association, posed the question: 'When is a gas salesman not a salesman?' Resisting the temptation to be content with the answer, 'When he is a mere order-taker,' Mr. Griffiths went on to make a Thing of the will to sell, and how it could be lost, and how important it was to press for a sale.

Replying to the discussion, he said that he had counted half a dozen speakers who had all stressed that it was vitally important that the salesman should have utter faith in what he was selling, and its superiority over its competitors. He put very little trust in that.

Discussion— a headquarters affair

The discussion was chiefly a headquarters affair, contributions coming from Mr. A. F. Pollock, Chief Financial Officer; Mr. R. H. Bone, Commercial Officer. Also from H. Q. were Mr. A. Briggs, Mr. A. Higgs, Mr. S. E. McKnight, Mr. R. Cowie, and Mr. R. Dunnett. Also taking part were Mr. T. Smith, Edinburgh; Mr. R. D. Bruce, Glasgow; Mr. A. Bogie, Glasgow; Mr. A. P. McInnes, Dumbarton; and Mr. A. McFadyen, Glasgow.

Admiral Sir Denis Boyd completed a remarkable trilogy of addresses with one on 'Communications' to add to his previous 'Leadership' and 'Discipline.'

Though the Admiral had ranged no

SCOTTISH STAFF CONFERENCE (CONTD.)

farther than the Mediterranean, the following two speakers took the audience much farther afield. Mr. H. R. Hart, the Deputy Chairman of the Board, offered 'Some Thoughts on the American Gas Industry', but 'Some Observations on the Lurgi Plants at Sasol and Morwell' by Mr. T. S. Ricketts, Chief Engineer, meant a round-the-world trip of 30,000 miles. There were some fascinating glimpses from these two of conditions in other continents—and even in other times, for Mr. Ricketts had as Exhibit 'A' a 15-mill.-year old piece of 'mumified' tree prised out of the working face of an Australian mine.

Mr. Smith brought the proceedings back to this day and place with the presentation of his cup to the Glasgow and Western Division as the winners of the Sales League competition. The competition is based on the cash value of domestic and commercial sales, and it was revealed that the average sales per customer had gone up from £2 0s. 9d. the previous year to £3 10s. 1d. Glasgow's winning total was £5 9s. 9d. Motherwell and Wishaw was in second place with £4 2s. 11d., followed by Airdrie and Coatbridge (£3 18s. 1d.), Ayr and Newton (£3 4s. 5d.), Kilmarnock (£3 7s. 0d.), and Borders (£3 6s. 9d.).

Mr. Smith observed that it was worth noting that Motherwell and Wishaw had risen to second place from sixteenth the previous year and Borders had moved from twenty-first to sixth.

Mr. McFadyen, receiving the cup, commented that the sales for the city of Glasgow alone amounted to £1.7 mill.

A summing-up of the two-day proceedings was given by Mr. F. Donachy, Board Member, and a comprehensive vote of thanks was moved by Mr. D. Beavis, General Manager, Edinburgh and South-Eastern Division.

'Around the world in 38 days'

'AROUND the world in 38 days' might have been the title of the talk given by Mr. T. S. Ricketts, the Board's Chief Engineer, on a trip undertaken with Mr. Sydney Smith, Chairman of the Board, to see how the Lurgi plants at Sasolburg, South Africa, and Morwell, Australia, were faring.

Mr. Ricketts said: 'Our trip started in a temperature of 75°F. at Johannesburg. It became far hotter than this during our travels over the Indian and Pacific Oceans and ended in a temperature far below freezing point in Ontario. We covered over 30,000 miles in a period of 38 days. We travelled completely round the world in this time, going against the sun from west to east all the way and, incidentally, gained one complete day in the process. We returned with a vast amount of information and knowledge, gained from the experience of others through their working of the Lurgi plant and its associated purification system.'

Of the Sasol plant, Mr. Ricketts said that there had been quite considerable difficulties during the first two or three years of working before the plant settled down, but the Lurgi gasifiers were now performing their task in a very satisfactory manner. It was evident that the Scottish Gas Board's gasifiers at Westfield had been designed by Lurgi to incorporate the benefits of the lessons learned at Sasol. It was very heartening to see, he commented, that the planned maintenance for the Sasol gasifiers for future years allowed for a very long period of running before the plant was shut down. He added: 'The planned maintenance system to be adopted at Westfield will be based largely on the Sasol lines.'

The gasifiers at Sasol, he explained, produced over 100 mill. cu.ft. of gas a day. This was used in synthesis plants to produce about 55 m. gal. of petrol and 6.5 mill. gal. of diesel oil per annum and other products.

The Lurgi plant at Morwell, ninety miles from Melbourne, uses brown coal. Some of it is burned in boilers to produce steam for electricity, and the rest is turned into briquettes for use in the Lurgi plant.

'The installation at Morwell consists of six Lurgi gasifiers similar in size to those at Westfield but of very much older design. Three things quickly became evident: First, quite a lot of troubles had been experienced; secondly, most of them had now been overcome; and thirdly, many of the adverse factors affecting Morwell operation will not be present at Westfield because the design is different and the coal to be used is better.'

Of the general gas position in the major Australian cities, Mr. Ricketts said: 'Gas sales are booming and increases of 5%, 6% and 7% are being achieved and forecast for the future. An air of optimism prevails in respect of the gas industry's future. The water heating load has been successfully attacked and to a large extent obtained. There appears to be no apprehension regarding the effect of electricity competition, although this is fairly strong. The competition from oil is appreciable but the interesting point emerges that in Australia the large gas companies take the whole of the butane supplies from the oil refineries and have a monopoly for the sale of bottled gas. The companies at Melbourne and Sydney are progressive in their outlook and make a point of sending two or three of their senior officers abroad each year for the purpose of gathering the latest information on administrative and technical processes in Europe and America.'

In Sydney the visitors heard of 'interesting and novel work' being carried out on purification. 'We were told that increased gas throughputs of up to 200% were being obtained. The method came from Honolulu, so as we were due to call there on our way to America during our journey home we arranged to visit the gasworks there.

'The Honolulu gasworks is certainly a gasworks to remember, being literally surrounded by coconut trees with a pine-apple canning factory beside it. It is a fairly large works—capacity about 9 mill. cu.ft. per day—and gas is produced in Jones type complete-gasification plants from the gasification of asphalt. A high calorific value gas—about 850 B.t.u. per cu.ft.—is sent out, but the calorific value is varied to maintain a steady flame characteristic, and this is controlled by automatic recorder.

'The purifiers are using the new type of artificial oxide which consists of wood shavings impregnated with a mixture of soda ash and iron dust. The oxide is being worked to a 70% sulphur content, which is more than half as much again as when using natural bog ore. The results are so interesting that we have brought back facts and figures relating to it and we intend to set up in Glasgow a small experimental unit to find out for ourselves whether we can apply this method to our own works.'

The tour concluded with a visit to the plant for the production of synthetic ammonia erected at Lake Ontario by Canadian Industries Ltd. There, oil is gasified by the Texaco process to produce a gas consisting mainly of carbon monoxide and hydrogen. Thereafter the remainder of the process is very similar to Westfield, carbon monoxide conversion plant being installed and the Benfield process employed for the removal of carbon dioxide and hydrogen sulphide. Initial corrosion troubles, Mr. Ricketts was told, had been overcome by the use of more suitable metals and by the prevention of high local velocities at certain parts of the plant by the introduction of larger diameter pipes.

Mr. H. R. Hart, Deputy Chairman of the Scottish Gas Board, who has also been in the United States recently, added some observations on the commercial side of the American gas industry.

1961 SYMPOSIUM ON PRESSURE VESSEL DESIGN

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Mr. E. H. Winch was introduced as Chairman of the Section for 1960-61; the Vice-Chairmen being Mr. K. B. Meggitt (Bedford) and Mr. D. W. Ault (Lincoln). Mr. J. Hunter-Rioch, M.B.E., continues as Hon. Secretary and Treasurer and Mr. Winch was appointed district member of the Institution Council.

Golf tournament

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'ROOM ONLY FOR FIRST - CLASS FITTERS'

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At a meeting of the council Alderman F. Logan, Chairman, said that from early next month, when the new gas plant would come into operation, all gas would be produced at a uniformly high quality.

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SCOTTISH STAFF CONFERENCE (CONTD.)

farther than the Mediterranean, the following two speakers took the audience much farther afield. Mr. H. R. Hart, the Deputy Chairman of the Board, offered 'Some Thoughts on the American Gas Industry', but 'Some Observations on the Lurgi Plants at Sasol and Morwell' by Mr. T. S. Ricketts, Chief Engineer, meant a round-the-world trip of 30,000 miles. There were some fascinating glimpses from these two of conditions in other continents—and even in other times, for Mr. Ricketts had as Exhibit 'A' a 15-mill.-year old piece of 'mumified' tree prised out of the working face of an Australian mine.

Mr. Smith brought the proceedings back to this day and place with the presentation of his cup to the Glasgow and Western Division as the winners of the Sales League competition. The competition is based on the cash value of domestic and commercial sales, and it was revealed that the average sales per customer had gone up from £2 0s. 9d. the previous year to £3 10s. 1d. Glasgow's winning total was £5 9s. 9d. Motherwell and Wishaw was in second place with £4 2s. 11d., followed by Airdrie and Coatbridge (£3 18s. 1d.), Ayr and Newton (£3 4s. 5d.), Kilmarnock (£3 7s. 0d.), and Borders (£3 6s. 9d.).

Mr. Smith observed that it was worth noting that Motherwell and Wishaw had risen to second place from sixteenth the previous year and Borders had moved from twenty-first to sixth.

Mr. McFadyen, receiving the cup, commented that the sales for the city of Glasgow alone amounted to £1.7 mill.

A summing-up of the two-day proceedings was given by Mr. F. Donachy, Board Member, and a comprehensive vote of thanks was moved by Mr. D. Beavis, General Manager, Edinburgh and South-Eastern Division.

'Around the world in 38 days'

'AROUND the world in 38 days' might have been the title of the talk given by Mr. T. S. Ricketts, the Board's Chief Engineer, on a trip undertaken with Mr. Sydney Smith, Chairman of the Board, to see how the Lurgi plants at Sasolburg, South Africa, and Morwell, Australia, were faring.

Mr. Ricketts said: 'Our trip started in a temperature of 75°F. at Johannesburg. It became far hotter than this during our travels over the Indian and Pacific Oceans and ended in a temperature far below freezing point in Ontario. We covered over 30,000 miles in a period of 38 days. We travelled completely round the world in this time, going against the sun from west to east all the way and, incidentally, gained one complete day in the process. We returned with a vast amount of information and knowledge, gained from the experience of others through their working of the Lurgi plant and its associated purification system.'

Of the Sasol plant, Mr. Ricketts said that there had been quite considerable difficulties during the first two or three years of working before the plant settled down, but the Lurgi gasifiers were now performing their task in a very satisfactory manner. It was evident that the Scottish Gas Board's gasifiers at Westfield had been designed by Lurgi to incorporate the benefits of the lessons learned at Sasol. It was very heartening to see, he commented, that the planned maintenance for the Sasol gasifiers for future years allowed for a very long period of running before the plant was shut down. He added: 'The planned maintenance system to be adopted at Westfield will be based largely on the Sasol lines.'

The gasifiers at Sasol, he explained, produced over 100 mill. cu.ft. of gas a day. This was used in synthesis plants to produce about 55 m. gal. of petrol and 6.5 mill. gal. of diesel oil per annum and other products.

The Lurgi plant at Morwell, ninety miles from Melbourne, uses brown coal. Some of it is burned in boilers to produce steam for electricity, and the rest is turned into briquettes for use in the Lurgi plant.

'The installation at Morwell consists of six Lurgi gasifiers similar in size to those at Westfield but of very much older design. Three things quickly became evident: First, quite a lot of troubles had been experienced; secondly, most of them had now been overcome; and thirdly, many of the adverse factors affecting Morwell operation will not be present at Westfield because the design is different and the coal to be used is better.'

Of the general gas position in the major Australian cities, Mr. Ricketts said: 'Gas sales are booming and increases of 5%, 6% and 7% are being achieved and forecast for the future. An air of optimism prevails in respect of the gas industry's future. The water heating load has been successfully attacked and to a large extent obtained. There appears to be no apprehension regarding the effect of electricity competition, although this is fairly strong. The competition from oil is appreciable but the interesting point emerges that in Australia the large gas companies take the whole of the butane supplies from the oil refineries and have a monopoly for the sale of bottled gas. The companies at Melbourne and Sydney are progressive in their outlook and make a point of sending two or three of their senior officers abroad each year for the purpose of gathering the latest information on administrative and technical processes in Europe and America.'

In Sydney the visitors heard of 'interesting and novel work' being carried out on purification. 'We were told that increased gas throughputs of up to 200% were being obtained. The method came from Honolulu, so as we were due to call there on our way to America during our journey home we arranged to visit the gasworks there.

'The Honolulu gasworks is certainly a gasworks to remember, being literally surrounded by coconut trees with a pine-apple canning factory beside it. It is a fairly large works—capacity about 9 mill. cu.ft. per day—and gas is produced in Jones type complete-gasification plants from the gasification of asphalt. A high calorific value gas—about 850 B.t.u. per cu.ft.—is sent out, but the calorific value is varied to maintain a steady flame characteristic, and this is controlled by automatic recorder.

'The purifiers are using the new type of artificial oxide which consists of wood shavings impregnated with a mixture of soda ash and iron dust. The oxide is being worked to a 70% sulphur content, which is more than half as much again as when using natural bog ore. The results are so interesting that we have brought back facts and figures relating to it and we intend to set up in Glasgow a small experimental unit to find out for ourselves whether we can apply this method to our own works.'

The tour concluded with a visit to the plant for the production of synthetic ammonia erected at Lake Ontario by Canadian Industries Ltd. There, oil is gasified by the Texaco process to produce a gas consisting mainly of carbon monoxide and hydrogen. Thereafter the remainder of the process is very similar to Westfield, carbon monoxide conversion plant being installed and the Benfield process employed for the removal of carbon dioxide and hydrogen sulphide. Initial corrosion troubles, Mr. Ricketts was told, had been overcome by the use of more suitable metals and by the prevention of high local velocities at certain parts of the plant by the introduction of larger diameter pipes.

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PERSONAL NOTES

MR. BERNARD WRIGHT of John Thompson Instrument Co., Ltd., who joined the company in June 1958 as their London representative, has been promoted to the position of Sales Manager. Mr. Wright will continue to be based at the company's London office in Kingsway, W.C.2. An associate member of the Institute of Instrument Technology, Mr. Wright began his career with the South Suburban Gas Company where he served an engineering apprenticeship.

MR. NORMAN W. MOORE, who has spent over 50 years in the gas industry, has retired from his post as district superintendent of the East Midlands Gas Board at Sileby, Leics., and has been succeeded by MR. DEREK B. SNELLING, of Leicester. Mr. Moore started work in Belfast in 1909 and after his 1914-18 war service and holding various positions in the industry he went in 1931 to Sileby as manager; becoming district superintendent after nationalisation.

MR. C. H. LEACH is the new County Director for Hampshire of the St. John Ambulance Association. He succeeds COLONEL SIR HAROLD SMITH. Mr. Leach is Chairman of the Southern Gas Board. Since coming to the South from Liverpool some four years ago, he has taken great interest in local affairs of the St. John Ambulance Association and acted as assistant county director to Sir Harold, who was until the beginning of the year chairman of the Gas Council.

MR. S. E. A. RYDER, Director and Chief Chemist of Stoves Ltd., and MR. W. RICHARDSON, Works Director, are going to Russia next month. The visit, organised by the Institute of Vitreous Enamellers, will include tours of factories and research institutions. Mr. Ryder and Mr. Richardson made a similar visit to the U.S.A. two years ago.

MR. T. E. D. MASON, Secretary of the Southern Gas Board, was recently elected Chairman of the Hampshire and Isle of Wight Branch of the Chartered Institute of Secretaries. The branch has 300 members and about 250 students.

MR. J. L. HYSLOP, Engineer and Manager of Belfast Corporation gas undertaking since 1941 is to retire shortly. A native of Ayr, Scotland, Mr. Hyslop has been an official of the gas undertaking for over 30 years.

OBITUARY

MR. RICHARD ROPER, of Crossflatts, Bingley, died last week at the age of 73. Mr. Roper worked for Bingley Council gas department and the North Eastern Gas Board until his retirement eight years ago.

NALGO conference at Brighton

Continued from page 565

generally well in advance, of proposed action which might lead to reduced establishments; usually, measures had been agreed for minimising dismissals of permanent staff. The National Joint Council had not yet reached agreement on compensation to be paid to redundant staff for whom no alternative place could be found.

On pensions, Mr. Phillips reported that proposals put forward by the Gas Council, which included provision for the payment of deferred pensions, were still being studied.

Non-unionists a danger

Mr. Phillips concluded with an optimistic account of the present state of the organisation of gas staffs. Membership in the ranks of NALGO continued to grow. He contended that it could not be too often repeated that the non-unionist was a danger to himself and to his colleagues; the strength of joint negotiations rested upon the representative character of those who took part in it.

Relations between NALGO and other organisations continued to be satisfactory. It could be said, within the limitations imposed by the fact that gas staffs were fairly equally divided between NALGO and the British Gas Staff Association, that the Whitley machinery was operating as well as could be expected; but it could not operate the maximum efficiency while the division persisted.

Precise proposals had been put to the B.G.S.A.; guarantees had been given about such matters as branch organisations and representation both within NALGO and in the Whitley machine and the most comprehensive safeguards had been suggested in regard to the full-time staff of the organisation. From the financial point of view, NALGO had nothing to gain from amalgamation; it might well prove to be financially disadvantageous. But there could be no possible doubt of the benefits which would accrue to all gas staffs if it took place.

Specialist salesmen

The debate revealed some criticism of the agreement for the appointment of special salesmen whose remuneration included a large commission element, but it was contended that this was inherent in an industry in which commercial development, on competitive lines, was an essential feature. Similar arguments arose over Saturday afternoon opening; some opposing it as an infringement of the freedom of staff while others accepted it as necessary to enhance the economic prospects of the industry.

Mr. A. Blue (Glasgow) thought that those prospects were such as to justify further consideration of the proposal advanced unsuccessfully at last year's conference for a request to the government to formulate a comprehensive fuel and power policy.

NALGO's salaries policy remains unaffected by conference decisions, save that its underlying principles are more clearly defined. The association adheres to the practice of seeking improvements for industries, grades, or sections, as circumstances may decide. The two basic factors, as defined in motions carried at this conference, are to seek to maintain reasonable comparability between the various groups of non-manual workers and to rely on the doctrine that they, like other workers, are entitled to their share in the rise in productive levels.

Another way in which NALGO members could share in the benefits from the use of modern techniques was referred to in a motion asking for a reduction in the hours of the working week without loss of pay. An amendment made the proposal more specific, asking in fact for a 35-hour week. They must expect some criticism from the old diehards, admitted Mr. T. Hadley (Staffordshire); they would remind them of the old days when the working week was of 40 or 50 hours, but times had changed, and public servants did not want to be at the back of the queue. The claim was not a cover for extra money, but stood on its own merits.

9-5 a good stint

Mr. E. A. Bottrill (Birmingham Electricity) said that a working day from 9 to 5 was still a good stint. This amelioration was an essential means to improving recruitment, said Mr. D. C. McHugo (London Electricity). Mr. G. R. Ashton, for the national executive council, said they had no criticism of the proposal, but they must deal first with the current salary claims before they sought to tackle the question of hours.

Another motion asking for endeavours to obtain a five-day week for all authorities was carried without discussion.

COMING EVENTS

July 1.—MANCHESTER AND DISTRICT SECTION, I.G.E.: Denton gasworks, Manchester. Chairman's Day. 10 a.m.

July 1.—MIDLAND SECTION, I.G.E.: Botanical Gardens, Birmingham. Summer Meeting and Ladies' Day. 10 a.m.

July 7.—EAST MIDLANDS G.C.C.: Nottingham Chamber of Commerce, Smithy Row, Nottingham. Annual Meeting. 11 a.m.

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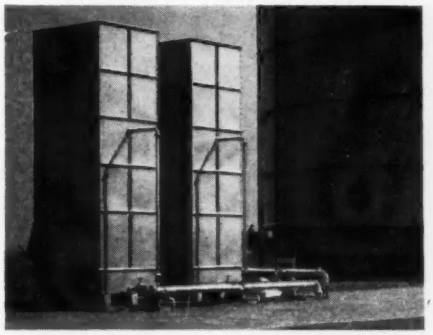
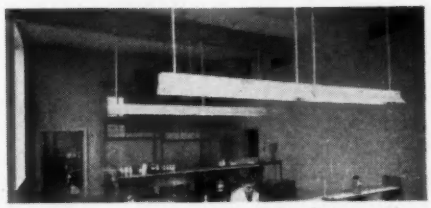
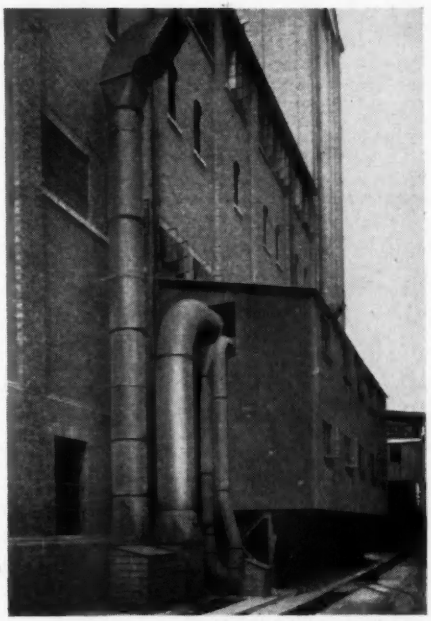


Forced Draught Cooler, Wales Gas Board



Air Conditioning Plant, United Coke & Chemical Co. Ltd.



Visco-Beth Dust Collector, Tradeston Gas Wks., Glasgow

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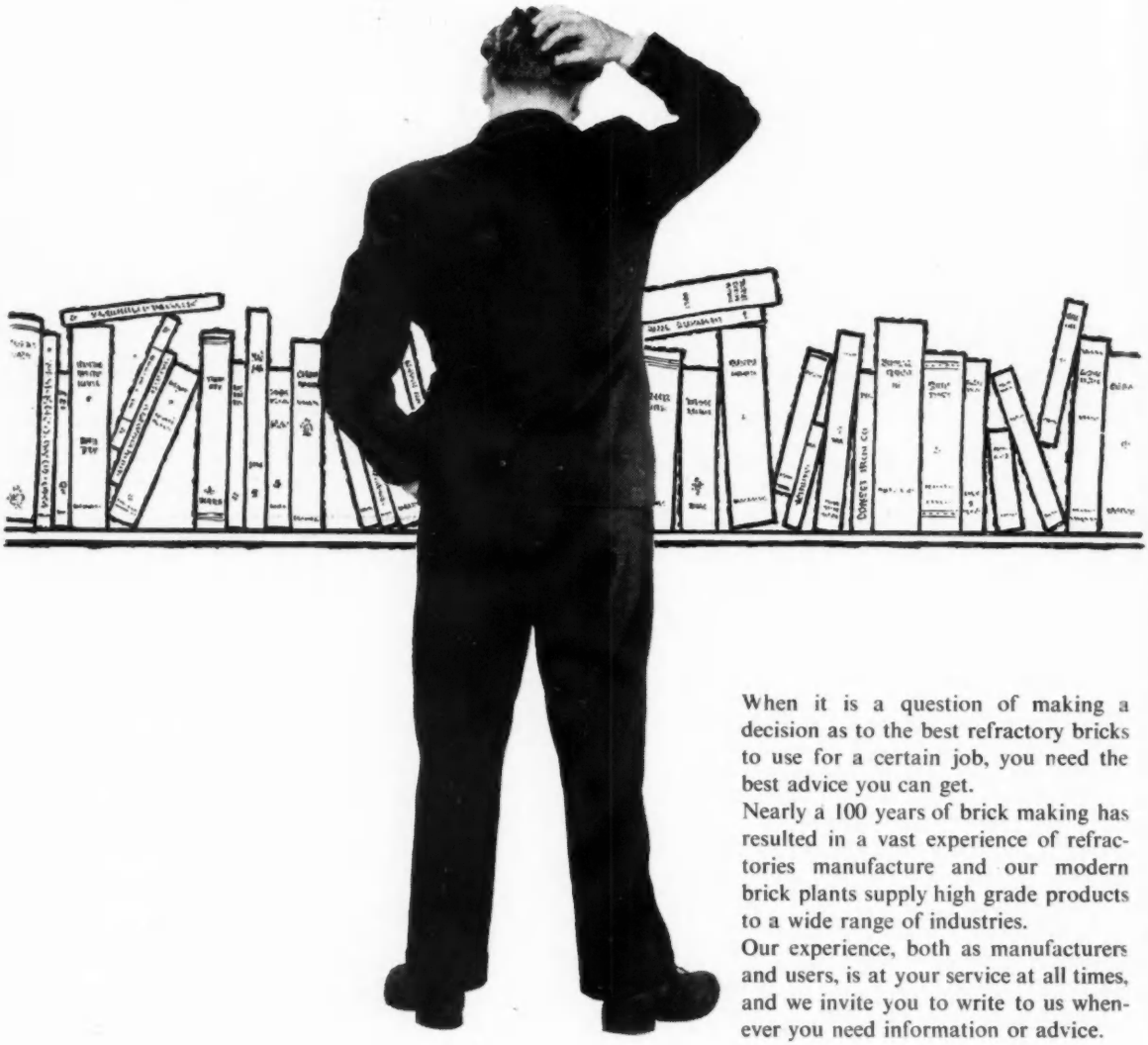

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INDEX TO 'JOURNAL' ADVERTISERS

	PAGE
A	
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Atlas Copco Ltd.	559
Audley Engineering Co. Ltd.	
B	
Babcock & Wilcox Ltd.	
Bagshawe & Co. Ltd.	
Bale & Church Ltd.	572
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Brown, J., & Co. Ltd.	
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Bunn & Johnson Ltd.	
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C	
Camrex Paints Ltd.	
Cannon (G.A.) Ltd.	
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Clapham Bros. Ltd.	
Clayton, Son & Co. Ltd.	
Clifford Engineering Co. Ltd.	
Cochrane (Middlesbro') Foundry Ltd.	
Concrete Proofing Co. Ltd.	
Consett Iron Co. Ltd.	544
Consolidated Pneumatic Tool Co. Ltd.	
Constructors, John Brown Ltd.	
Controlled Flame Boilers Ltd.	
Cort, Robert, & Son Ltd.	574
Crane Ltd.	
Crone & Taylor Ltd.	
Crossley Bros. Ltd.	
Cutler, Samuel & Sons Ltd.	
D	
Davenport Engineering Co. Ltd.	547
Davey, Paxman & Co. Ltd.	
Dean Sales Promotion Ltd.	
Demolition & Construction Ltd.	
Dempster, R. & J., Ltd.	
Dempster, Robert, & Sons Ltd.	560
Denison, Sam., & Sons Ltd.	
Derbyshire Silica Firebrick Co. Ltd.	
Diaphragm & Gen. Leather Co. Ltd.	
Donkin (The Bryan) Co. Ltd.	Cover II
Dowson & Mason Ltd.	
Drakes Ltd.	
Dressing & Screening Co. Ltd.	572
Drew, H. B., Ltd.	
Dunlop Rubber Co. Ltd.	
E	
Engre Construction Co. Ltd.	
Electroflo Meter Co. Ltd.	
Electrolux Ltd.	
Elcontrol Ltd.	
Ether Ltd.	
Evered & Co. Ltd.	
Evode Ltd.	
Ewart Chainbelt Co. Ltd.	
F	
Frankipile Ltd.	

	PAGE
G	
G.H.L. Painters Ltd.	572
Gibbons Bros. Ltd.	
Glovers Chemicals Ltd.	
Glover, Thomas, & Co. Ltd.	
Godfrey, Sir George, & Partners (Indus.)	
Goodyear Industrial Rbr. Products Ltd.	
Graphite Products Ltd.	571
Green & Boulding Ltd.	572
Greenwood & Batley	
Gunite Construction Co., Ltd.	571
H	
Hamilton, A. H., & Co. Ltd.	
Hardman & Holden Ltd.	
Harrisons (London) Ltd.	
Haywood Tyler Ltd.	
Head Wrightson Processes Ltd.	
Hick Hargreaves & Co. Ltd.	
Hills (West Bromwich) Ltd.	
Hilmor Ltd.	
Hindle, Joshua & Sons Ltd.	
Holmes, W. C., & Co. Ltd.	573
Honeywell Controls Ltd.	
Hopkinsons Ltd.	571
Horseley Bridge & Thomas Piggott Ltd.	
Howden, James & Co. Ltd.	
Humphreys & Glasgow Ltd.	
Hunslet Engine Co. Ltd.	
I	
I.C.I. Ltd.	
Ideal Boilers & Radiators Ltd.	
Incandescent Heat Co. Ltd.	
Inertol Ltd.	
Ingham, John, & Sons Ltd.	
International Furnaces Ltd.	
J	
Jeavons, E. E., & Co. Ltd.	
Jeavons Engineering Co.	Cover II
Jenkins, W. J., & Co. Ltd.	
Joy Sullivan Ltd.	
K	
Kay, Frederick & Co. Ltd.	
Kay & Co. Ltd.	
Keay, E. C. & J., Ltd.	
Kennedy, Allan, & Co. Ltd.	
Kings Patent Agency Ltd.	
King, Walter, Ltd.	571
Kirkham, Hulett & Chandler Ltd.	
L	
Lafarge Aluminous Cement Co. Ltd.	
Lamont, James H., & Co. Ltd.	
Lead Development Association	
Le Bas Tube Co. Ltd.	
Lincoln Electric Co. Ltd.	
Lind, Peter, Ltd.	
M	
Macpherson, Donald, & Co. Ltd.	
Main, R. & A., Ltd.	
Main Water Heaters Ltd.	548
Major Robinson & Co. Ltd.	
Marinite Ltd.	
Meltham Silica Fire Brick Co. Ltd.	
Mercol Descaling Co. Ltd.	
Merton Engineering Ltd.	
Metal & Pipeline Endurance Ltd.	
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Metropolitan Leather Co. Ltd.	
Metropolitan-Vickers Electrical Co.	
Midland Iron & Hardware Co. (Cradley Heath) Ltd.	
Millspaugh Ltd.	
Milne (Edinburgh) Ltd.	
Modern Furnaces & Stoves Ltd.	
Moler Products Ltd.	546
Morgana, Ets.	
Murex Welding Process Ltd.	
N	
Neal, R. H., & Co. Ltd.	
Newton Chambers & Co. Ltd.	
Normalair Ltd.	
Norwest Construction Co. Ltd.	
O	
Oxley Engineering Co. Ltd.	
P	
P. G. Engineering Ltd.	
Parkinson Cowan (Appliances) Ltd.	
Parkinson Cowan Gas Meters	
Parkinson Cowan Industrial Products	

	PAGE
Pass, E., & Co. Ltd.	
Peart, E., & Co. Ltd.	
Peebles & Co. Ltd.	
Perl Controls Ltd.	
Platon, G. A., Ltd.	
Potterton, Thomas Ltd.	
Press, William, & Son Ltd.	
Priest Furnaces Ltd.	
Pulsometer Engineering Co. Ltd.	
Q	
Quasi-Arc Ltd.	
R	
Radiant Heating Ltd.	
Radiation Ltd.	
Reavell & Co. Ltd.	547
Redheugh, Iron & Steel Co., (1936) Ltd.	
Robinson, J. H., & Co. (L'pool.) Ltd.	
Rotameter Manufacturing Co. Ltd.	
Rozalex Ltd.	
S	
Schieldrop & Co. Ltd.	
Scientific & Projections Ltd.	Cover III
Sheepbridge Equipment Ltd.	
Shimwell & Co.	
Sigma Instrument Co. Ltd.	
Simon-Carves Ltd.	
Simon, Richard, & Sons Ltd.	
Sismey & Linforth	
Smith, Thomas & Sons (Rodley) Ltd.	
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Stanton Ironworks Co. Ltd.	
Staveley Iron & Chemical Co. Ltd.	
Steelway Ltd.	
Stein, John G., & Co. Ltd.	
Stewarts & Lloyds Ltd.	563
Stoves Ltd.	
Stringer Brothers	
Sugg, Wm., & Co. Ltd.	
Sutcliffe, Richard, Ltd.	
Sutcliffe Speakman & Co. Ltd.	
T	
T & T Works Ltd.	
Teddington Industrial Products	
Thermal Syndicate Ltd.	
Thermic Equipment & Engineering Co.	
Thomas, Richard & Baldwins (Sales) Ltd.	
Thorp, Thomas, & Co. Ltd.	
Tileman & Co. Ltd.	
Triangle Valve Co. Ltd.	
U	
Underpressure Engineering Co. Ltd.	
United Gas Industries Ltd.	
V	
Vauxhall Motors Ltd.	
Victaulic Ltd.	Cover IV
Visco Engineering Co. Ltd.	543
W	
Walker, C. & W., Ltd.	
Walker Crosweller & Co. Ltd.	
Waller, George, & Sons Ltd.	
Walter King Ltd.	571
Ward, Thos. W., Ltd.	
Wellington Tube Works Ltd.	
West's Gas Improvement Co. Ltd.	Cover I
West's Piling & Construction Co.	
Westwood & Wrights Ltd.	
Whessoe Ltd.	
Whitehouse, Wm., & Sons Ltd.	
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Woodall-Duckham Construction Co. Ltd.	
Wood Hugh, & Co. Ltd.	
Worthington Simpson Ltd.	
Wykeham, W. & Co. Ltd.	

Agencies	
Appointments Vacant	572
Business Premises	
Contracts Open	572
Educational	
Miscellaneous	
Patents and Trade Marks	
Plant &c. For Sale and Wanted	
Publishers Notice	
Readers' Enquiry Service	

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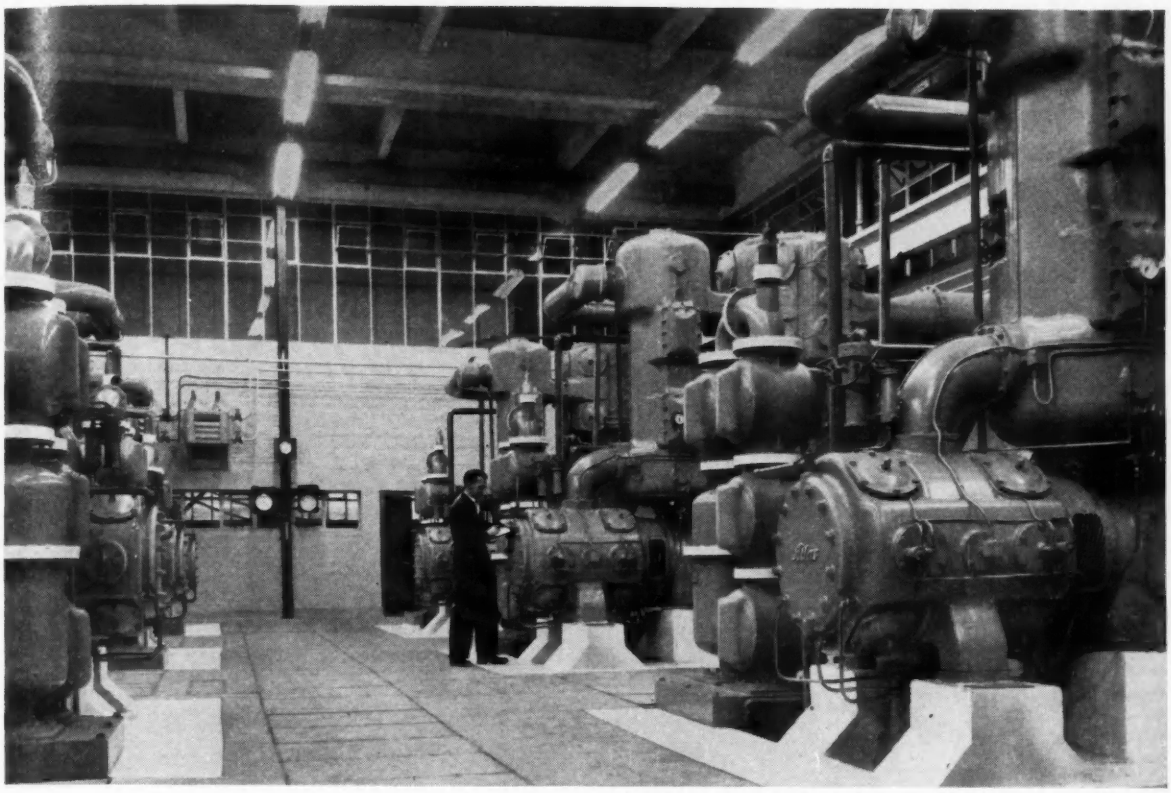

Some of the seven Atlas Copco AR9 compressors already in service with Vauxhall.

VAUXHALL TO ATLAS COPCO...

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For more than three years Vauxhall Motors Limited have been operating seven, 3,210 c.f.m. Atlas Copco AR9 Stationary Compressors at their Luton Works. Now due to expansion at these works and the increased demand for compressed air, Vauxhall have now ordered three additional units which will bring the total number of this compressor installation to ten.

The Atlas Copco AR9 saves power, which on an annual running time (three shifts) 7,200 hours, could represent a yearly saving of up to £450 per compressor. The compact AR9, with its 'L' arrangement of cylinders, its short, single-throw crankshaft and shaftless overhung motor can save 25% in floor space.

No other compressor in the range of 3,000 c.f.m. at 100 p.s.i. costs so little to operate and needs so little room for installation.

A Vauxhall Cresta outside the Atlas Copco works at Hemel Hempstead.

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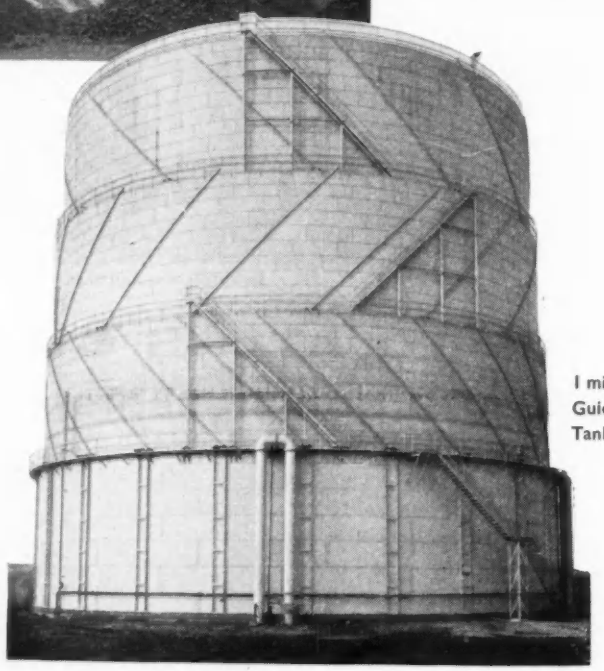

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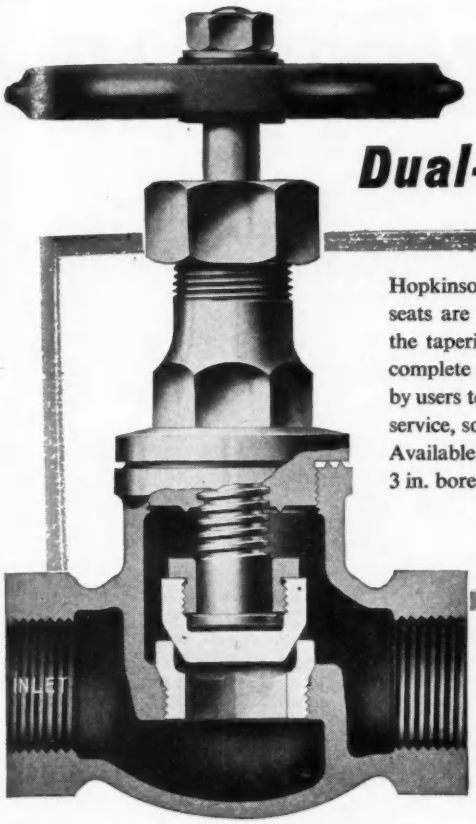

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Hopkinsons' "S.T.S." bronze valves, with their mitre-faced valve heads and seats are suitable for use as either isolating or regulating valves. Note how the tapering metal-to-metal joint between body and seat helps to ensure complete fluid-tightness. This range of small valves, in fact, is acknowledged by users to be exceptional for maintaining tightness over very long periods of service, so simply are they designed and so sturdily made.
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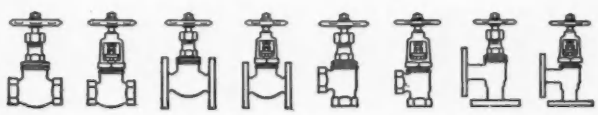

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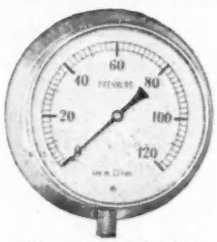

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CONTRACTS OPEN

LISBURN URBAN DISTRICT COUNCIL

THE Lisburn Urban District Council invites tenders for the laying of approximately 4,200 yards of 12 in. diameter Spun Iron Gas Main from the Lisburn Gas Supply Boundary to the Lisburn Gas Works.

Copies of form of tender, conditions of tender and contract, specification and schedule may be obtained on application to the office of the Town Clerk, Town Hall, Lisburn, upon the payment of a deposit of three pounds which will be refunded to contractors who return the documents and submit a bona-fide tender, not subsequently withdrawn.

Any tender bearing a slip or endorsement purporting to vary the General Conditions of Contract or other contract document will not be considered.

Tenders, upon the official form of tender, should be enclosed in a sealed envelope marked 'Belfast/Lisburn Bulk Gas Supply' and lodged with the undersigned not later than 12 noon on THURSDAY, July 21, 1960.

The Council is not bound to accept the lowest or any tender.

R. C. NEWELL,
Town Clerk.

Town Hall,
Lisburn.
June 16, 1960.

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NORTHERN GAS BOARD
TEES-SIDE DIVISION

DIVISIONAL DOMESTIC SALES MANAGER

APPLICATIONS are invited for the position of Divisional Domestic Sales Manager to the Tees-Side Division.

The successful candidate will be responsible to the Divisional General Manager for the control of all Domestic Sales staff, whether employed on the district or in the fourteen showrooms of the Division, the promotion and co-ordination of domestic appliance sales, and for all consumer activities, other than the installation and maintenance of appliances.

The Divisional Domestic Sales Manager will be required to assist in co-ordinating the Board's commercial policy through the Divisional Sales Managers Committee under the chairmanship of the Commercial Officer.

It is the intention of the Division to develop further its active selling policy throughout the area covering approximately 150,000 consumers, and in order that the person appointed shall have a direct interest in the results obtained, the remuneration will be based upon a combination of a fixed salary and commission related to the cost price of appliances sold.

The terms proposed would have yielded an income of about £1,750 in the Board's financial year ended March 31, 1960. The Board expects to see a considerable expansion in sales, and a corresponding improvement in the commission earned will automatically follow.

Applications are invited from persons who have achieved success in sales development in this or other fields, and who consider themselves capable of making outstanding progress in a position where initiative of the highest order is a first essential.

Applications, which will be treated as confidential, should reach the undersigned by Friday, July 8, 1960.

H. BUCKLEY,
Divisional General Manager.

P.O. Box No. 4,
Commercial Street,
Middlesbrough.

SCOTTISH GAS BOARD
GLASGOW AND WESTERN DIVISION

PAISLEY DISTRICT
SENIOR TECHNICAL ASSISTANT
(CARBONISING)

APPLICATIONS are invited from suitably qualified persons for the post of Senior Technical Assistant (Carbonising) in the Paisley District of the Glasgow and Western Division.

Applicants should possess the Higher National Certificate in Gas Manufacture and must have experience in the control of Retort Benches and C.W.G. Plant, Purification, etc.

The successful applicant will be required to pass a medical examination and become a member of the Board's Staff Superannuation Scheme.

The post will be remunerated within Grade APT. 7, Provincial 'A,' £733-£813 per annum, of the National Salary Scales for the Gas Industry, with placing therein according to qualifications and experience.

Applications, marked 'STA(C),' stating age and giving particulars of education, training, qualifications and experience, should be addressed to the Divisional Personnel, Welfare and Training Officer, The Scottish Gas Board, Dept. GJ, 9, George Square, Glasgow, C.2, not later than ten days from the appearance of this advertisement.

P/RMcDS/AB.
June 14, 1960.

WEST MIDLANDS GAS BOARD
HINCKLEY DISTRICT
VACANCY FOR
ASSISTANT ENGINEER

CANDIDATES should be Associate Members of the Institution of Gas Engineers or hold an equivalent qualification. They should have had practical experience in the Chemical and Engineering control of modern gas production and be conversant with the normal production procedure and maintenance appropriate to a 500 million cu.ft. per annum Works with Vertical Retorts. Distribution experience would be an advantage.

The salary for the appointment, which is pensionable and subject to medical examination will be within the range of £733-£813 per annum.

Applications, stating age, qualifications and experience, should be addressed to Mr. A. Allen, Divisional General Manager, West Midlands Gas Board, Gas Street, Coventry, **to reach him not later than July 7, 1960.**

WEST MIDLANDS GAS BOARD
WOLVERHAMPTON AND DISTRICT DIVISION
VACANCY FOR
MAINS INSPECTOR, CENTRAL GROUP

CANDIDATES should have a sound knowledge of high and low pressure gas supply and of main and service laying by direct and contractors' labour.

The salary for the appointment, which is pensionable and subject to medical examination, will be within the range of £664-£744 per annum.

Accommodation is available if required, at a reasonable rental.

Applications, stating age, qualifications and experience, should be addressed to Mr. Stanley Jones, Divisional General Manager, West Midlands Gas Board, Kensington House, Bath Street, Dudley, **to reach him not later than July 8, 1960.**

WALES GAS BOARD
NEWPORT UNDERTAKING
TECHNICAL ASSISTANT—DISTRIBUTION

APPLICATIONS are invited for the above vacancy. The Newport Undertaking has an interesting and varied range of distribution plant and equipment and a considerable development programme is in progress.

Applicants should be technically qualified and have had general experience in technical work on the design and installation of high and low pressure distribution systems. Experience in supervision of labour and work on gas fitting and gas utilisation will be an advantage. The salary will be within Grades A.P.T. 7/8 £733-£853 per annum, and the initial placing will be dependent upon the qualifications and experience of the successful applicant. The post is pensionable and subject to a medical examination.

A flat is available at a reasonable rental.

Applications giving full details of age, qualifications and experience together with the names of two referees should reach the undersigned by Saturday, July 16, 1960.

A. H. DYER,
General Manager and Engineer.

Gas Offices,
Mill Street,
Newport, Mon.
June 20, 1960.

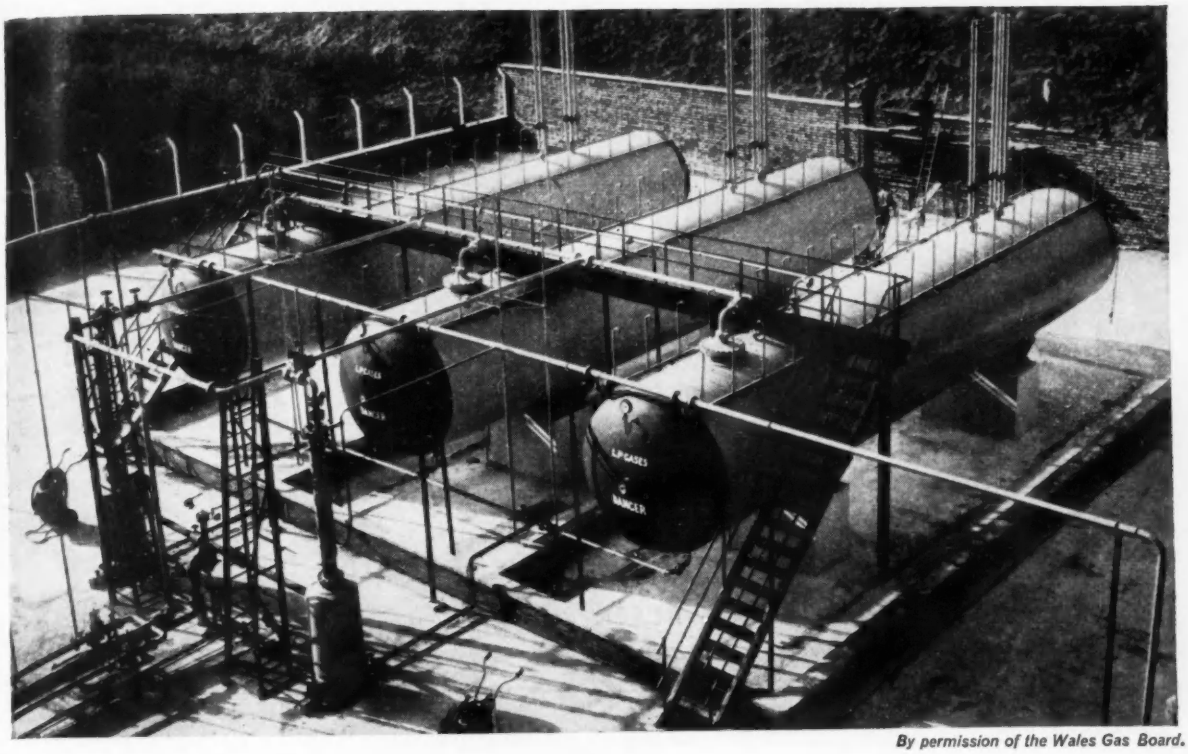
DRAUGHTSMAN, aged 21 or over with O.N.C. required by NORTH THAMES GAS BOARD at the TAR AND AMMONIA PRODUCTS WORKS, BECKTON, EAST HAM, E.6.

The post offers the possibility of obtaining experience in the expanding field of chemical engineering for an applicant who has had a sound mechanical training.

Starting salary will be according to qualifications and experience, and the successful candidate will be required to join a contributory Staff Pension Scheme. Five day week.

Applications, giving age and full particulars, should be sent to the Staff Controller, North Thames Gas Board, 30, Kensington Church Street, W.8, quoting reference GJ/839.

LIQUEFIED PETROLEUM GAS PLANT



By permission of the Wales Gas Board.

The Liquefied Petroleum Gas Plant illustrated above was installed at the Grangetown Works, Cardiff of the Wales Gas Board for the purpose of augmenting towns gas. This installation comprises storage vessels, vaporisers and ancillary equipment capable of storing and vaporising 100-tons of either propane or butane.

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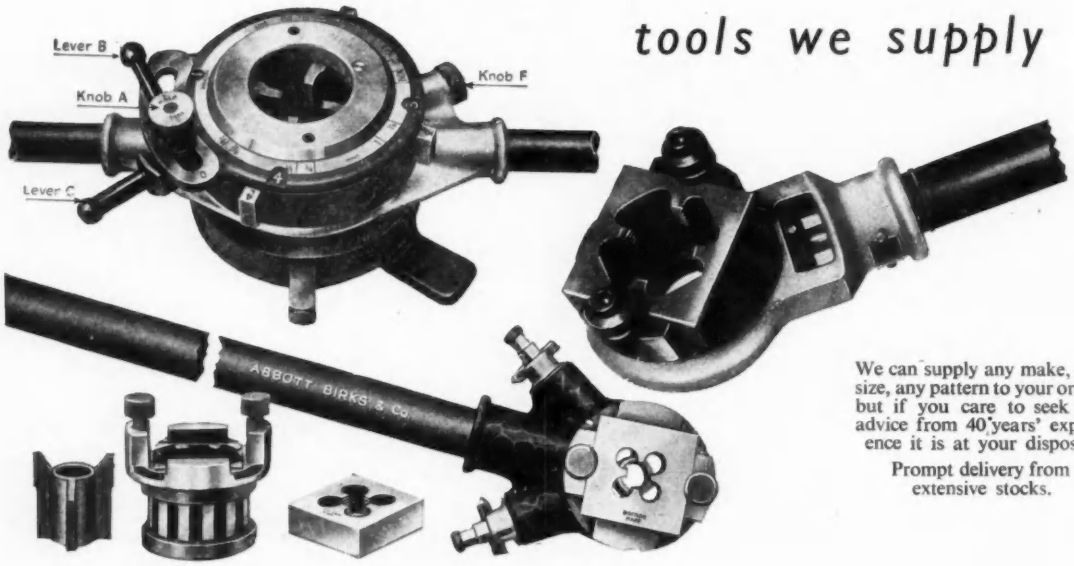

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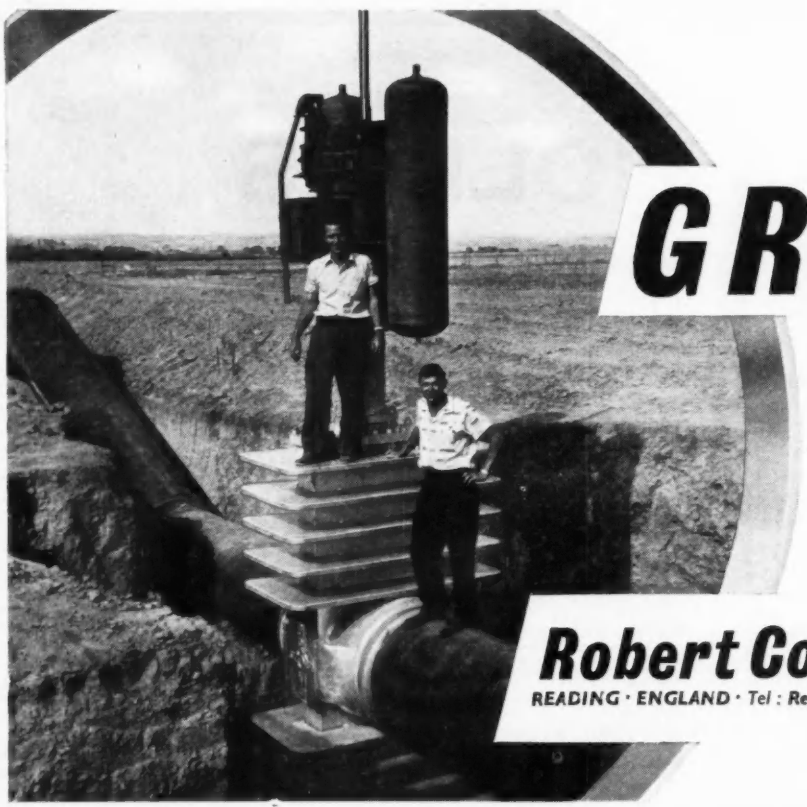

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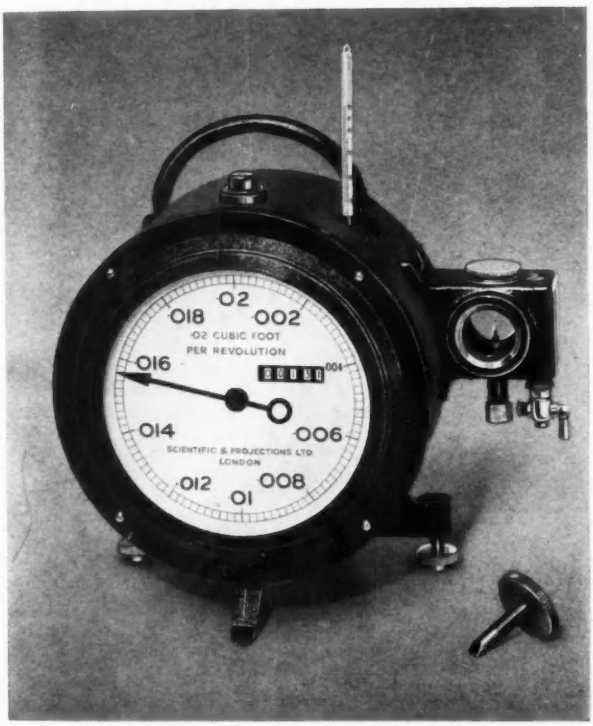

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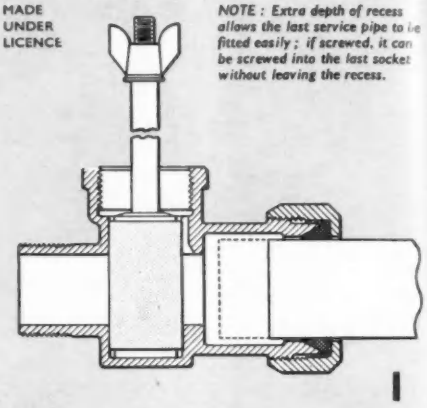
NOTE : Extra depth of recess allows the last service pipe to be fitted easily ; if screwed, it can be screwed into the last socket without leaving the recess.



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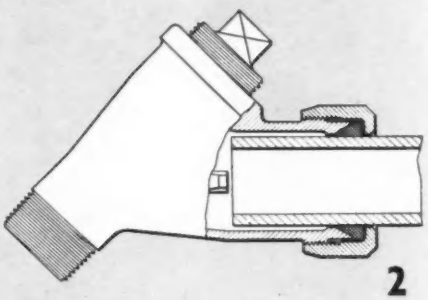
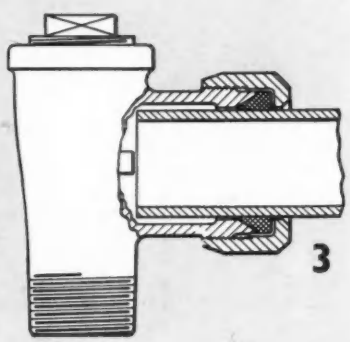


2

In all of these, after removing the top plug, the main can be sealed off by expanding a rubber 'stopper' both for testing purposes and while the service is being connected.

Standard Viking Johnson bolted couplings are extensively used on new mains and for repairing old ones. Viking Johnson flange adapters are useful for connecting plain pipes to valves or orifice plates and have been recommended under safety regulations for isolating gas chambers.



3

A 'long' Viking Johnson Junior Coupling used for connecting screwed or plain ended pipes.

VIKING JOHNSON

THE VICTAULIC COMPANY LIMITED, 8 GOUGH SQUARE, FLEET STREET, LONDON, E.C.4 **Telephone : FLEET STREET 8346**

Manufacturers of Viking Johnson couplings and Victaulic joints.

Registered Trade Marks : 'Viking' and 'Victaulic'

9899